RAILTEL CORPORATION OF INDIA LTD.

(A Govt. of India Enterprise)

Territory Office

Plot No. 17, 1st Floor, Raghunath Nagar,

Near Shahpura Police station,

Bhopal MP - 462039

Western Region Office

Western Railway Microwave Complex

Senapati Bapat Marg,

Near Railway Sports Ground,

Mahalaxmi, Mumbai – 400013

Corporate Office

Plate-A, 6th Floor, Office Tower-2,

NBCC Building, East Kidwai Nagar,

New Delhi - 110023

Tender

For

"Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC".

Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

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NOTICE

Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

RailTel Corporation of India Ltd invites Tender's via E-Mail with password protected folder from reputed firms for work mentioned in the Scope of this Tender. The technical and commercial (price) bids shall be submitted through E-Mail at **bpltooffice@railtelindia.com** in password protected folder as separate PDF documents up to the end date & time mentioned below.

Sr. No.	**Description**	**Estimated Cost**	**Last date & Time for Bid Submission**	**Date &Time for Bid Open**	**Completion Period**
1	"Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC".	As per tender document attached As per Tender No: 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023	01-12-2023 10:00 Hrs.	01-12-2023 10:30 Hrs.	As per Tender No: 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023

Note: In case of any discrepancy or ambiguity in any clause/specification pertaining to scope of work area, Tender no. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023. "Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC". will be sacrosanct **(Copy at annexure–VIII).**

PRICE BID

Please Refer BoQ – Annexure -VIII

Bidder should quote price for end-to-end SOW wrt–Tender Ref: RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023 and subsequent corrigenda. “Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC”.

Note: In case of any discrepancy or ambiguity in any clause/specification pertaining to scope of work area, the Tender no. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023. “Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC”.
will be sacrosanct **(Copy at annexure–VIII).**

1. The details are as under:

1	Issue date of "Invitation for Tender document"	24-11-2023
2	Last date for submission of Tender by applicants	01-12-2023 10:00 Hrs.
3	Opening of Tenders	01-12-2023 10:30 Hrs.
4	Tenders Submission Mode	By email (with password protected)
5	Completion Period	As per tender ref. no. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023

Tender and all corrigenda will be made available at RailTel Corporation of India's portal https://www.railtelindia.com. Tender fee- Rs. 50,000/- +GST & EMD of Rs. 12,50,000/- as per tender clause. **(For Bank detail Refer Annexure VII)**

Note: For bid submission, tenderer will have to submit signed and stamped printed copy of the tender document.

1. RailTel intends to look for an empaneled BIDDER who can help us with Bid Submission & have the ability to take up the work on turnkey basis and who has good connect with the customer and local environment. The bidder shall bear all costs associated with the preparation, submission / participation in the bid. RailTel in no way will be responsible or liable for these costs regardless of the conduct or outcome of the bidding process.

2. Bidders shall necessarily furnish the details of the valid SD/PBG/Tender fee/fee applicable submitted at time of empanelment for consideration of their offer.

3. Undertaking stating that bidder accept to execute SOW of Tender on fully Back-to-Back basis.

4. Copy of power of attorney issued in favor of signatory

5. The bidder responding to this Tender shall give an undertaking that, if they are successful, then they will not participate directly or with other direct bidder

6. A pre bid agreement will be signed with successful bidder on non-judicial stamp of adequate value as per final bid value. Format will be shared with successful bidder only

7. The Bidder should have average annual turnover from IT / ITES/ICT of ₹ 5 crores in the last 3 Years out of previous 4 years (i.e., for FY 2020-21, FY 2021-22, FY 2022-23)

8. The Bidder must provide acceptance (with documents) on the following:

All payments shall be paid on Bidder back-to-back basis. RailTel shall make payment to selected Business Associate after receiving payment from the end customer for the successful completion portion. In case of any penalty or deduction made by the end customer, the same shall be deducted from the selected BIDDER.

The BIDDER should have the pre-requisite experience for similar type of work.

Bidder will submit No deviation certificate. Bidder will submit non-blacklisted certificate.

Partner will be chosen as per the policy guidelines of RailTel Corporation of India Ltd. Further evaluation will be carried out.

Please submit your proposal latest by 01-12-2023 upto 10:00 Hrs.

"All Bidders are required to submit their bids (complete in all aspects) within the time and date as specified in Section 2 (Fact Sheet). The Bids received after the due date and the specified time (including the extended period if any) for any reason whatsoever, shall not be entertained".

Prospective bidders are required to direct all communications related to this Invitation for

Tender document, through the following Help Desk:

Contact (1)	Ms. Aanchal I Raaj
Designation	AGM/Bhopal
Email	aanchal@railtelindia.com
Telephone	+917552428644
Mobile	+919717644122
Contact (2)	Shri. Anand Kumar
Designation	Deputy General Manager/Marketing
Email	anandnkn@railtelindia.com
Telephone	+917552428644
Mobile	+919004444107

	Check List	
Sl. No	Document	Remarks (Yes/ No)
1	Offer Letter	Annexure I
1	Proof of Submission of PBG/SD/Tender Empanelment Fee submitted against Empanelment with RailTel	
2	Copy of LoA/LOI issued by RailTel for confirmation of empanelment.	
3	Undertaking stating that bidder accept to execute SOW of Tender on fully Back-to-Back basis.	
4	The bidder responding to this Tender shall give an undertaking that, if they are successful, then they will not participate directly or with other direct bidder	
5	Compliance certificate format	Annexure II
6	Financial capacity Format	Annexure III
7	Format for Declaration for acceptance of all Terms & Conditions	Annexure IV
8	Non blacklisted	Annexure V
9	No deviation certificate	Annexure VI
10	RailTel's bank account detail to deposit EMD	Annexure VII
11	Tender Document – 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023	Annexure VIII
12	Price Bid (BOQ) Annexure Financial Bid Formed of Tender No. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023	Annexure IX (BOQ)

ANNEXURE-I:

OFFERLETTER

(To be on company letter head)

Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

To,
Principal Executive Director
RailTel Corporation of India Limited
Western Railway
Microwave Complex
Senapati Bapat Marg,
Near Railway Sports Ground,
Mahalaxmi, Mumbai–400013

Dear Sir,
Sub: Participation in the Tender.

Having examined the Invitation Tender document bearing the reference number Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023 released by your esteemed organization, we undersigned, hereby acknowledge the receipt of the same and offer to participate in conformity with the said Invitation for Tender document.

I/We fully understand the terms and conditions as contained in the EOI document and we agree that the same shall apply to our tender and I/We shall be bound by them.
EMD & Tender document cost details are as follows: -

Tender document cost: - ……………………………
EMD :- ……………………………

We hereby declare that all the information and supporting documents furnished as a part of our response to the said Invitation for Tender document, are true to the best of our knowledge. We understand that in case any discrepancy is found in the information submitted by us, our Tender is liable to be rejected.

Date: Signature with seal–

Name: ______________________________
Designation: ______________________________

Annexure II

Compliance Certificate

To,
Principal Executive Director
RailTel Corporation of India Limited
Western Railway Microwave Complex
Senapati Bapat Marg,
Near Railway Sports Ground,
Mahalaxmi, Mumbai–400013

Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

Dear Sir,

This is in response to the Invitation for Tender for the “Selection of System Integrator for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD & MPRDC”. in Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023 We have applied against Tender issued by RailTel Corporation of India Ltd. We hereby covenant, warrant and confirm. We hereby comply with all the terms and conditions/stipulations as contained in the Invitation for Tender document.

Date:
(in the box)

Signature with seal

Name:
Designation:

Annexure- III

Financial capacity Format

(to be issued by practicing Chartered Accountant on its letter head)

TO WHOM IT MAY CONCERN

Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

This is to certify that M/s .... having its office at ……………………………………………………. are in the business of ………………..………………… for …………. Completed years (considered upto 31st March 2023) and the date of incorporation is ____________. Their annual financial Turnover during the preceding three years or from date of incorporation (in case of date of incorporation is within Three years of March) are as given below:

Financial Year	Turnover (in Rs Cr)	Profit / Loss (in Rs Cr)
2020-2021		
2021-2022		
2022-2023		

This is further certified that the above Turnover is in line with the Turnover declared by the Firm in their Income Tax Returns filed under PAN……………………….

Place……………………

Signature………………

Name………………….

Annexure-IV

Performa for Declaration of acceptance for all Terms & Conditions

Declaration for acceptance of all Terms & Conditions of the
Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

1. We M/s (_________________________________) having registered office at (Address) ____ agree to all the Terms & Conditions of the Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023 issued by RailTel.

2. Our offer will remain valid for 180 days from the date of opening of the Tender.

3. We confirm that we have the necessary resources & capabilities to undertake the work as specified in the schedule of work as per all terms and conditions given in the above Tender. We have also understood the process of submitting bid to RAILTEL and Instructions given in the above Tender. Further, we confirm that we shall execute the work against this price discovery for scope as specified in this Tender.

4. We also agree that RailTel has the right to reject all Tender, in part or in full without assigning any reason whatsoever.

5. This Tender along with other documents as stipulated in Tender together with your written acceptance thereof shall constitute a binding contract between us.

Date:-

Name of the Company:-

Signature & Seal:-

Annexure-V

Non-Blacklisting Certificate Declaration

To,
Principal Executive Director
RailTel Corporation of India Limited
Western Railway
Microwave Complex
Senapati Bapat Marg,
Near Railway Sports Ground,
Mahalaxmi, Mumbai–400013

Sub: Undertaking of no deviation from Tender/ RFP terms and condition
Tender Ref:- RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

We hereby undertake and submit the declaration that our firm/company is not debarred/black listed for future business with any Central/State Government organization/CPSU/SPSU in India.

In case, at any stage if the above declaration is found false or incorrect, the Purchaser shall be free to take any punitive/legal action against us, as may be deemed fit, which shall be acceptable / binding on us and the consequences shall be to our account.

Date:

Name & Signature of
Authorized Representative:

Company Seal:

Name of Bidder:

Full Address:

Telephone No.:

Annexure-VI

Format for Statement of No Deviation from the RFP

To,
Principal Executive Director
RailTel Corporation of India Limited
Western Railway
Microwave Complex
Senapati Bapat Marg,
Near Railway Sports Ground,
Mahalaxmi, Mumbai – 400013

Date: ______________
Sub: Undertaking of no deviation from Tender/RFP terms and condition
Tender Ref: - RCIL WR-BPL/MKTG(EB)/Nov.- 2/14 dated: 28.11.2023

Dear Sir,
This is to confirm that the proposal/bid submitted by <<_________________>>, is in complete agreement with the RFP/Tender and any of the corrigendum(s) or amendment(s) issued thereon and there is no deviation whatsoever.

Date:

Name & Signature of
Authorized Representative:

Company
Seal:

Name of Bidder:

Full Address:

Telephone No.:

Annexure -VII

Union Bank of India

Mahalaxmi Branch
Mahalaxmi Chambers
22, Bhulabhai Desai Road
MUMBAI: 400 026
Tel. No. No.23512895 / 23517234 Fax No.23516948

LT No:MAH/RCIL/2010 Date: 21/10/2010

To,
The Sr. Manager (Finance)
Railtel Corporation Of India Limited
Mahalaxmi,Mumbai

Dear Sir,

Sub-: Bank Details For your collection account.

We are in receipt of your letter no. RCIL/WR/Fin/Bank Matters dated 20.10.2010 Requesting bank details for your collection account no. 317801010036605. Details are below-:

Account No.- 317801010036605

A/c Name- Railtel WR collection A/c

Bank Name- UNION BANK OF INDIA

Branch name- Mahalaxmi, branch

Branch address- 22, bhulabhai desai Road, Mahalaxmi chambers,
Mahalaxmi, Mumbai-400026

IFSC Code- UBIN0531782

Swift Code- UBININBBLOP

Thanking You

Your's faithfully

P. Tiwari

Pushpa Tiwari
Manager

यूनियन बैंक ऑफ इंडिया/UNION BANK OF INDIA
महालक्ष्मी
MAHALAXMI

Annexure -VIII

6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023

Request for Proposal (RFP)

Selection of Implementation Agency
For
Designing, Development, Implementation & Maintenance of
Integrated Project Management System
for MPPWD & MPRDC

Madhya Pradesh
Road Development Corporation

NIT No. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023

Invited by
Madhya Pradesh Road Development Corporation
Jail Road, Arera Hills, Bhopal – 462004, Madhya Pradesh, India
Email- procu-mprdc@mp.gov.in

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Madhya Pradesh Road Development Corporation

NOTICE FOR INVITING TENDER (NIT)

Request for Proposal for Selection of Implementation Agency for Designing, Development, Implementation & Maintenance of Integrated Project Management System for MPPWD and MPRDC

NIT No. 6464/633/MPRDC/Procu./IPMS/2023 Dated 03.10.2023

Madhya Pradesh Road Development Corporation invites Bids from qualified and experienced agencies for Designing, Development, Implementation & Maintenance of Integrated Project Management System (IPMS) in MPPWD and MPRDC under Govt. of MP. Bidders qualifying as per the criteria defined in the RFP, are encouraged to participate the selection process.

Interested bidders can submit their Bids online only in response to this NIT latest by **1530 hrs. on 06.11.2023.** The detailed RFP document can be downloaded from the website www.mptenders.gov.in up to **1530 Hrs. on 06.11.2023.** Pre-bid meeting will be conducted on **11.10.2023 at 1530 hours** at Conference Hall in MP Road Development Corporation, Jail Road, Arera Hills, Bhopal, Madhya Pradesh 462004.

Chief Engineer,
MP Road Development Corporation
Bhopal, MP

DISCLAIMER

All information contained in this Request for Proposal (RFP) provided/ clarified are in the good interest and faith. This is not an agreement, and this is not an offer or invitation to enter into an agreement of any kind with any party.

Though adequate care has been taken in the presentation of this RFP document, the interested bidders shall satisfy themselves that the document is complete in all respects. The information published in this document is not intended to be exhaustive. Interested Bidders are required to make their own enquiries and assumptions wherever required.

Intimation of discrepancy, if any, should be given to the specified office immediately as pre-bid query. If no intimation is received by this office by the date mentioned in the document, it shall be deemed that the RFP document is complete in all respects and firms submitting their bids are satisfied that the RFP document is complete in all respects.

MP Road Development Corporation (MPRDC) reserves the right to reject any or all of the applications submitted in response to this RFP document at any stage without assigning any reasons whatsoever. MPRDC also reserves right to withhold or withdraw the process at any stage with intimation to all who have submitted their bids in response to this RFP. MPRDC reserves the right to change/ modify/ amend any or all of the provisions of this RFP document without assigning any reason. Any such change would be communicated to the bidders by posting it on official eProcurement Website (www.mptenders.gov.in).

Neither MPRDC nor its employees and associates will have any liability to any prospective bidder interested to bid or any other person under the law of contract to the principles or resolution or unjust enrichment or otherwise for any loss, expense or damage which may raise from or be incurred or suffered in connection with anything contained in this RFP document, any matter deemed to form part of this RFP document, the award of the Project, the information and any other information supplied by or on behalf of MPRDC and MPPWD or their employees and bidders or otherwise arising in any way from the selection process for the Project.

Information provided in this document or imparted to any respondent as part of RFP process is confidential to MPRDC and shall not be used by the respondent for any other purpose, distributed to, or shared with any other person or organization.

Acronyms

Particulars	Details
AA	Administrative Approval
ARS	Accident Response System
AE	Assistant Engineer
APD	Additional Project Director
BOQ	Bill of Quantity
CA	Chief Architect
CE	Chief Engineer
DD	Demand Draft
DPE	Divisional Project Engineer
DPR	Detail Project Report
DRF	Document Review Forms
EE	Executive Engineer
ENC	Engineer in Chief
EMD	Earnest Money Deposit
FAT	Final Acceptance Testing
FDR	Fixed Deposit Receipt
FRS	Functional Requirement Specification
GFC	Good for Construction
GIS	Geographic Information System
GST	Goods and Services Tax
HQ	Headquarters
HR	Human Resource
IA	Implementing Agency
IFMIS	Integrated Financial Management Information System
IT	Information Technology
JPD	Joint Project Director
KPI	Key Process Indicators
LOI	Letter of Intent
MB	Measurement Book
MD	Managing Director
MP	Madhya Pradesh
MPPWD	Madhya Pradesh Public Works Department
MPPWD-PIU	Madhya Pradesh Public Works Department, Project Implementation Unit
MPRDC	Madhya Pradesh Road Development Corporation
NIC	National Informatics Centre

NIT	Notice Inviting Tender
PD	Project Director
PG	Performance Guarantee
PMC	Project Management Consultants
QC	Quality Control
QCBS	Quality and Cost Based System
RAMS	Road Asset Management
RFP	Request for Proposal
SDO	Sub Division Officer
SE	Superintendent Engineer
SLA	Service Level Agreement
SOP	Standard Operating Procedures
SoR	Schedule of Rates
SQC	Standard Quality Control
SRS	System Requirement Specification
TS	Technical Sanction
UAT	User Acceptance Test
WMS	Works Management System

Table of Contents

1 Data Sheet - Key Activities and Dates

Competitive Bidding for Selection of Implementation Agency for Designing, Development, Implementation & Maintenance of Integrated Project Management System (IPMS) under MPPWD.

No.	Key Activities	Details
1.	**Name of the Project**	**Designing, Development, Implementation & Maintenance of Integrated Project Management System (IPMS)**
2.	Name of the Project Owner	Govt. of MP through MPRDC
3.	Bid Inviting Authority	Chief Engineer (Procurement), MPRDC, Bhopal
4.	Cost of Bid Document	Rs. 50,000/- Only
5.	Bid Security (EMD)	Rs. 12,50,000 Only
6.	Mode of deposit of EMD	Online on www.mptenders.gov.in
7.	Bid Validity period	180 Days from the last date of bid submission.
8.	Selection Method	Quality cum Cost Basis Selection (QCBS) (70:30)
9.	Assignment Phases	Implementation Phase (12 Months) Operation and Maintenance (5 Years)
10.	Consortium or Joint Venture	Not Allowed
11.	Availability of Bid Documents	www.mptenders.gov.in
12.	Language for Communication	English
13.	Purchase of Bid Document Start Date & Time	From 04.10.2023 15:30 hours
14.	Pre-Bid queries/suggestions Last date and time	Upto 15:30 hours on 11.10.2023
15.	E-mail address for Pre-bid Queries	procu-mprdc@mp.gov.in
16.	Pre-Bid Meeting Date and Time	11.10.2023 at 15:30 hours
17.	Location for Pre-bid Meeting	MPRDC Office Bhopal
18.	Bid Submission Start Date & Time	From 26.10.2023 15:30 hours
19.	Last Date and Time for Bid Submission	Upto 06.11.2023 15:30 Hrs
20.	Bid Opening Date and Time	07.11.2023 at 15:30 Hrs
21.	Technical Presentation Date, Time and Venue	Would be communicated later to qualified bidders.
22.	Financial Bids Opening Date and Time	Would be communicated later to shortlisted bidders.

Note: This Bid Document is not transferable.

1. Prospective Bidders are encouraged to undertake a preliminary study of the MPPWD and MPRDC Units, Functions, Work Divisions, etc. at their own cost.
2. The Department reserves the rights to reject any or all the bids in whole or in part at any time without mentioning any reasons thereof.

2 Structure of the RFP

This RFP document for selection of Implementation Agency for Designing, Development, Implementation & Maintenance of Integrated Project Management System (IPMS) under MPRDC (the "**Purchaser**") and MPPWD, comprises of the following:

i. **Part 1 - Instructions to Bidders**

   This section provides detail of bidding process including Pre-qualification, Technical Evaluation and Commercial Evaluation Parameters.

ii. **Part 2 - Scope of Services**

   This section provides existing system of functioning, IT practices, Scope of Work, Functional & Technical Requirements of IPMS, Project Schedule, Service Levels and Project Manpower during implementation and O&M.

iii. Part 3 - General Conditions of Contract

   This section provides General Condition of Contract including Roles & Responsibilities and Payments Terms.

iv. Part 4 – Bid Forms and Appendix

   This section provides Bidding forms, formats and Appendixes that are referred in various sections of the RFP Document.

The Bidders are expected to respond to the requirements as completely and in as much relevant detail as possible and focus on demonstrating Bidder's suitability for selection as Implementation Agency.

3 Background Information

3.1 ABOUT MADHYA PRADESH

The state of Madhya Pradesh came into existence in 1956. In the year 2000, the state was bifurcated leading to the formation of the new state of Chhattisgarh. In terms of geography, Madhya Pradesh is the second largest state in the country, with an area of about 308,000 sq. km and population of about 73 million even after bifurcation.

Over the last 2 decades Madhya Pradesh has witnessed a radical transformation in terms of economic and social development. The state has recorded an impressive growth in GSDP averaging over 9% during the last decade of stable governance, supplemented by creation of a robust support infrastructure in terms of roads, water supply, irrigation capacity and a year-round 24x7 power supply. The abundant manpower of the state has been developed into a skilled technical workforce, with the presence of world class institutes like IIM, IIT, AIIMS, Engineering colleges and several ITIs. The state is leading in textile manufacturing, automobiles, food processing, soya processing, engineering and agriculture equipment manufacturing. In the same duration, MP has completely transformed its roads sector from Budget driven construction methodology to demand driven mode. The challenges of Poor fund flow for projects – low budget outlay, Poor Connectivity, low industrial investment, sluggish business growth have been overcome.

3.2 ABOUT MPPWD AND MPRDC

MP Public Works Department (MPPWD) is the premier agency of Government of Madhya Pradesh engaged in Planning, Designing, and Construction and Maintenance of Government assets like Roads, Bridges, ROBs, Flyovers and Buildings with support of around 12000 employees on its payroll. MPPWD is also the Nodal Agency for e-Registration of contractors of all Infrastructure Development Departments in the State.

Public Works Department has two wings: PWD - Bridges & Roads (B&R) and PWD - Project Implementation Unit (PWD PIU). PWD-B&R looks after construction, upgradation and maintenance of roads and bridges, and upgradation & maintenance of buildings. PWD PIU is responsible for construction of buildings in the state in project mode. The main activities of the department are:

1. Construction, Upgradation and Maintenance of all road assets in the State.
2. Construction and Maintenance of Buildings in the State on Project mode (PWD-PIU)

3. E- registration of Contractors of all Works Department in the State

MP Road Development Corporation Ltd. (MPRDC) was incorporated as a wholly government owned company under The Companies Act 1956 by the Government with an authorized share capital of Rs. 20 Crore, paid up share capital of Rs. 10 Crore. Presently paid up share capital of Company is Rs. 20 Crore. Under the administrative control of MPPWD, the MPRDC is entrusted with responsibility for implementation of all State Highway, National Highway and Major District road projects. A large percentage of projects are operate under the BOT Roads "public - private partnership" scheme while others being developed under the EPC, Regular Contract scheme. Several projects, funded by External Funding Agencies like ADB & NDB, are managed by MPRDC. Main objectives of MPRDC are:

- To construct, reconstruct, erect, build remodel, repair, reclaim, demolish, develop, improve, operate and maintain the roads, highways, express highways, bridges, culverts embankment, sideways, subways, flyovers, tunnels, railroads, multi - modal transport systems and infrastructure, models and complexes in India.
- To carryout all types of construction, architectural or other works under the Built operate and transfer (BOT) Scheme or under any other scheme to be formulated from time to time and for the assignment of state Govt. of M.P.
- To Act as consultants in connection with infrastructure projects in India or Abroad.
- To act as to modal agency of the State Govt. for executing roads and allied infrastructure projects or for objects as envisaged in above clause under public - private or joint venture basis or otherwise.
- To prepare and develop strategic plans for the state road sector and identification and selection of projects based upon economic, social for technical and commercial criteria.

In MPRDC, large percentage of projects has been taken up under BOT/ Public Private Partnership scheme under these PPP schemes the Govt. mandates the MPRDC to grant concession to successful bidder. A summary of MPRDC projects are as follows:

Completed Projects

Sl. No.	Mode	Project Count	Length (Km)	Cost (INR Cr.)
1.	BOT (Toll)	39	3537	7956

2.	BOT (Toll + Annuity)	32	1514	3102
3.	BOT (Annuity)	38	1094	1665
4.	EPC	28	1525	7497
5.	HAM	8	325	1070

Ongoing Projects

Sl. No.	Mode	Project Count	Length (Km)	Cost (INR Cr.)
1.	EPC	9	377	1650
2.	HAM	28	1384	3433

MPRDC and MPPWD largely follows a traditional paper-based system. However, it is felt that with the advent of latest technologies the Department can significantly improve efficiency and manageability by providing visual representation and one-click access to latest information while making archived data available whenever required. Therefore MPPWD and MPRDC are looking for a suitable agency to design, develop, implement and maintain a Integrated Project Management system (IPMS). The envisaged IPMS is expected to assist MPPWD and MPRDC in rationalizing decision-making in planning, programming, funding, Executing Road, Bridge and Building Projects. The system will be designed to keep in mind international best practices and will be developed around state-of-art-technology, in a context of simple, user friendly and suitable to local needs and conditions.

3.3 ORGANIZATION STRUCTURE OF MPPWD

The Public Works Department is accountable to the State Government through the Minister of Public Works while the Principal Secretary (PS) heads the organization at a Government level. Principal Secretary is assisted by a Secretary, who is the administrative head of Technical, Planning and Establishment Sections. There are Additional/Deputy Secretaries & Officers on Duty (OSD). Additional/Deputy Secretaries manage the establishment while OSDs manage the technical section. At the subsequent level, there are Under Secretaries, Section officers along with clerks. Managing Director, Madhya Pradesh Road Development Corporation, Engineer-in-Chief PWD, Project Director-Project Implementation Unit (PWD PIU) also directly report to the Principal Secretary of Public Works Department.

MPPWD headquarters, located at Nirman Bhawan in Bhopal, houses the office of Engineer-in-Chief and Project Director (PIU). Three Zonal Chief Engineers-Capital Zone, Bridges and National Highways also have office at Nirman Bhawan. Chief Architect and Finance Controller are also positioned at the Headquarters and report directly to Engineer-in-Chief and Project Director (PIU). The Engineer-in-Chief is the head of the Public Works Department assisted by nine Zones and each zone is headed by a Chief Engineer.

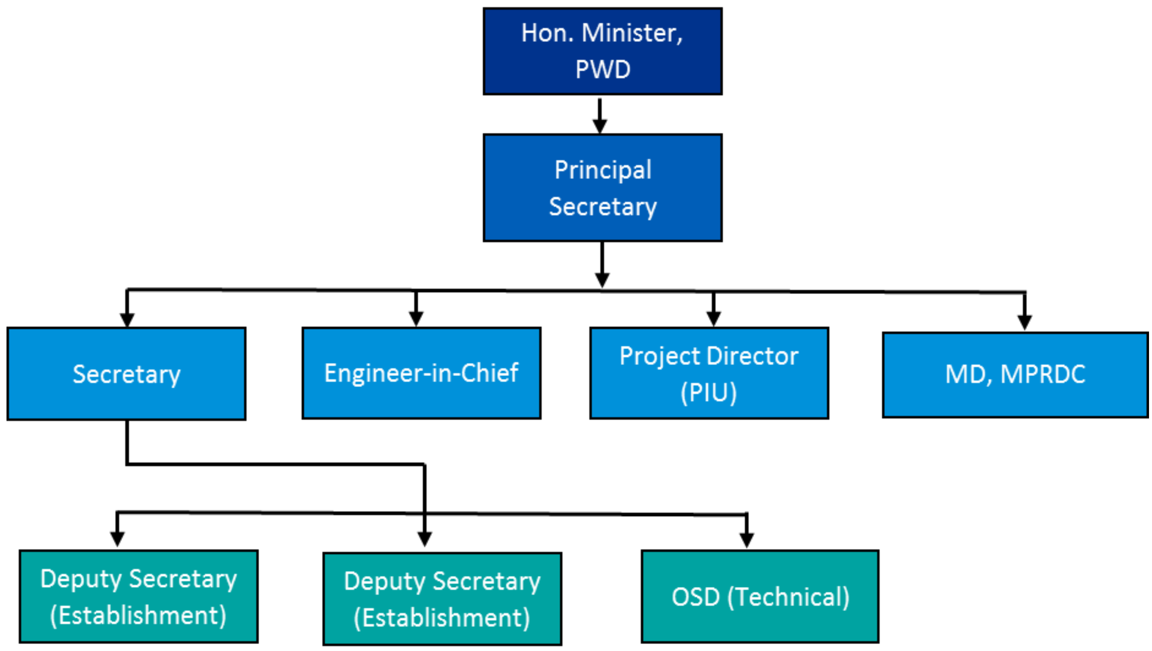


FIGURE 1: MPPWD GOVERNMENT LEVEL ORGANIZATION STRUCTURE

3.3.1 Structure of MPPWD (Road & Bridges)

The Field office consists of Zone offices headed by Chief Engineer, under the zones there are Circle offices headed by Superintending Engineer. The Divisions are under the control of circles and headed by Executive Engineer. There are Sub-Divisions under the division office where Assistant Engineers/SDOs who are in-charge of Sub-Divisions. Sub-Engineers are posted in various sections under the Sub-Divisions and are assisted by Site Assistant/Time keepers. There are 18 Circle offices, 77 Division offices and 285 SDO offices in MPPWD (B&R). Divisional offices are the main executing units and all other offices (higher offices) act as coordinating, guiding and monitoring units.

Field Level Structure: Following are the field offices in PWD (B & R)

Sr No	Zones	Civil			Electrical & Maintenance			Total		
		Circle	Div.	Sub Div.	Circle	Div.	Sub Div.	Circle	Div.	Sub Div.
1	Capital Zone Bhopal	3	11	42	1	2	11	4	13	53
2	National Highways	0	6	11	0	0	0	0	6	11
3	Bridge Zone	3	7	30	0	0	0	3	7	30
4	Central Zone Bhopal	2	9	35	0	1	7	2	10	42
5	Western Zone Indore	2	9	27	0	1	6	2	10	33
6	Ujjain Zone	1	7	22	0	1	7	1	8	29
7	North Zone Gwalior	2	8	28	0	1	7	2	9	25
8	Rewa Zone	2	7	22	0	1	6	2	8	28
9	Sagar Zone	2	5	19	0	1	5	2	6	24
	Total	17	69	236	1	8	49	18	77	285

Table 1: MPPWD Offices

Resource allocation in Field offices of PWD (B&R) is as under at each location:

TABLE 2: RESOURCE ALLOCATION IN FIELD OFFICES OF MPPWD (B&R)

Sr No	No of Officers	Zonal office	Circle office	Division office	Sub Division office
1	Chief Engineer	1	0	0	0
2	Superintendent Engineer	0	1	0	0
3	Executive Engineer	2	0	1	0
4	Zonal Accounts officer	1	0	0	0
5	Assistant Engineer	8	2	0	1
6	Sub Engineer	2	1	0	5
7	Divisional Accounts Officer	1	0	1	0
8	Zonal Superintendent	1	0	0	0
9	Circle Superintendent	0	1	0	0
10	Assistant Grade 1	2	1	0	0
11	Assistant Grade 2	12	4	4	1
12	Assistant Grade 3	12	8	5	2
13	Personal Assistant	1	0	0	0
14	Short hand	0	1	0	0
15	Steno Typist	1	1	0	0
16	Draftsman (DM)	1	1	1	0
17	Assistant Draftsman (ADM)	2	1	0	1
18	Tracer	2	1	1	1
19	Daftari	1	1	1	0
20	Peon	7	2	2	2
	Total	57	26	16	13

Similarly, there are 182 resources in E-in-C office, 32 resources in CE RDD, 58 resources in CE NH Zone and 62 resources in CE Bridge Zone; 79 resources in Project Director Office and 60 resources in Chief Architect office.

Office	Approved No. of Posts
E-in-C office Bhopal	
E-in-C	182
CE RDD	32
Project Director Office (PIU)	
PD PIU	1109
Chief Arch.	60
Office of Chief Engineers (Zones)	
National Highway	269
Bridges	567
Gwalior	736
Bhopal	1051
Bhopal	824
Indore	677
Rewa	592
Sagar	503
Ujjain	605
Total	7207

Table 3: MPPWD Overall Resource allocation

3.3.2 Structure MPPWD-PIU (Buildings)

Project Director is the head of PIU under MPPWD, assisted by Chief Architect and five Additional Project Directors (APD PIU) namely APD PIU Bhopal, APD PIU Bhopal, APD PIU Indore, APD PIU Gwalior and APD PIU Rewa.

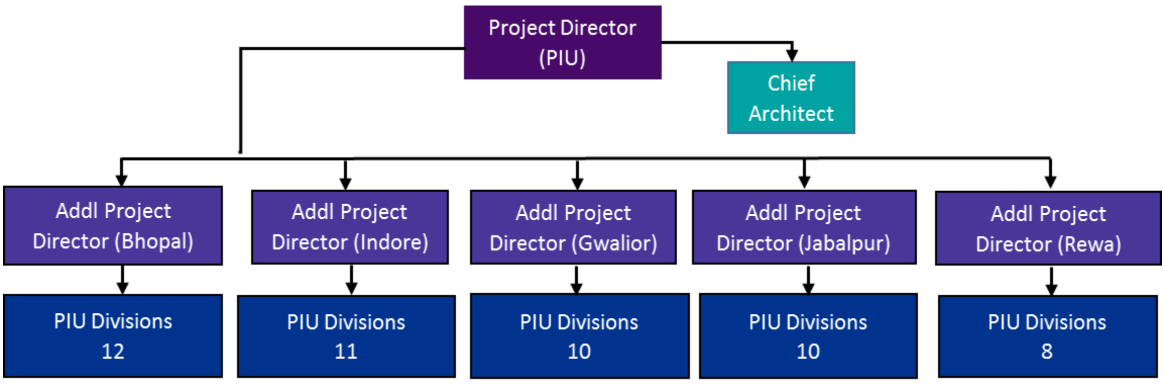


FIGURE 2: PIU ORGANISATION STRUCTURE

The APD PIU is assisted by Joint Project Director (JPD PIU) and Divisional Project Engineers (DPE PIU). The DPEs are posted in all the Districts of the State and Project Engineers (PE PIU) are posted under DPE. Assistant Project Engineers are posted under Project Engineer. There are total 51 DPE offices across districts of Madhya Pradesh.

Resource allocation in each office of Additional Project Director & PIU Divisional office is as under:

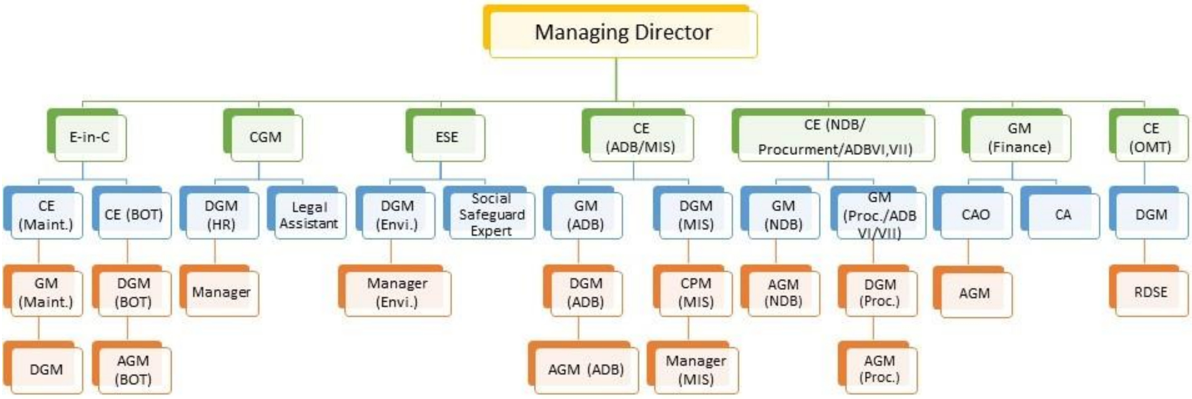
Sr No	No of Officers	Addl Project Director Office	PIU Divisional Office
1	Addl Project Director	1	0
2	Joint Project Director	1	0
3	Senior Project Accounts officer	1	0
4	Divisional Project Engineer (Civil)	1	1
5	Divisional Project Engineer (E&M)	1	0
6	Project Engineer (Civil)	1	2
7	Project Engineer (E&M)	0	1
8	Project Accounts officer	0	1
9	Asst Project Engineer (Civil)	2	4
10	Asst Project Engineer (E&M)	2	1
11	Data Entry Operator	2	2
12	Shorthand	1	0
13	Assistant Grade 1	1	0
14	Assistant Grade 2	1	1
15	Assistant Grade 3	1	1
16	Draftsman (DM)	1	1
17	Assistant Draftsman (ADM)	2	1
18	Tracer	2	0
19	Peon	2	2
	Total	**23**	**18**

Table 4: Resource Allocation in Field offices of PIU

Functions of PIU:

- To prepare architectural design and drawings for the construction of public buildings.
- To conduct survey, investigate, and prepare Detailed Project Report (DPR) and to construct new roads including bridges, culverts, causeways etc. and to improve existing roads including bridges, culverts, causeways etc.
- To manage residential and non-residential buildings borne on the books of departments.
- To carry out annual repairs and maintenance of roads, including bridges, culverts, causeways etc.
- To execute relief works in scarcity declared areas. where calamities have taken place
- To register contractors for all the Works Departments of State Government
- To prepare Schedule of Rates (SoR) and update the same from time to time.
- To prepare, adopt and amend Technical Specifications for execution of works.
- To execute any other work assigned by Government from time to time.

3.3.3 Structure of MPRDC



Head Office	Division Name	Districts Name
Bhopal	Bhopal	Bhopal, Raisen, Rajgarh, Sehore, Vidisha
	Narmadapuram	Betul, Harda, Hoshangabad
	Jabalpur	Jabalpur, Katni, Mandla, Narsinghpur, Dindori
	Ujjain	Agar Malwa, Dewas, Mandsaur, Neemuch, Ratlam, Shajapur, Ujjain
	Gwalior	Gwalior, Shivpuri, Guna, Ashok Nagar, Datia
	Sidhi	Sidhi, Singrouli
	Chambal	Morena, Bhind, Sheopur
	Rewa	Rewa, Satna
	Shahdol	Shahdol, Annupur, Umaria
	Sagar	Sagar, Chhatarpur, Tikamgarh, Damoh, Panna
	Chhindwara	Chhindwara, Seoni, Balaghat
	Indore	Indore, Khargone, Khandwa, Burhanpur
	Dhar	Dhar, Alirajpur, Jhabua, Barwani

4 Project Background

MPPWD and MPRDC intends to transform its key business processes related to building works planning and management, which have been largely based on legacy systems. With the advent of modern methods of Project Management, the MPPWD and MPRDC desires to re-look at its operating model to become more efficient and deliver optimal solutions to respective stakeholders. The adoption of contemporary systems will help MPPWD and

MPRDC to achieve better planning & management of building works and facilitate informed decision making.

The proposed IPMS is envisaged to be a system for management and tracking of works conducted under MPPWD and MPRDC. The new system will ensure process automation and real time monitoring of financial and physical progress of work. The proposed IPMS would need to be developed to cover the entire lifecycle of construction project work and provide end-to-end solution for tracking fund-flow and synchronized with the IFMIS portal, e-tender portal and Road Asset Management System. The whole system of the financial governance management will be streamlined, automated and made transparent. As the existing works management system is not integrated with IFMIS, errors go unnoticed during reconciliation of monthly accounts and same are recorded in the books of account. This becomes a major issue at the time of Audit. IPMS is envisaged to leverage latest technologies like GIS software, geo tagging, Online TS & AA approval, e–MB, Online Utilization Certificate, Online Voucher & cash book which interlink with Monthly Account Statements. This will ensure that the physical and financial progress of the work is tracked on real time basis, thereby ensuring financial discipline and enhancing financial management, bringing transparency and enabling accountability. The integrated work-flow system shall also eliminate delays at various levels.

The MPPWD and MPRDC intends to develop IPMS with the following features:

- Record all the details of the project such as TS, AA, contract value, project start date, project completion time, project completion date, name of the contractor etc.
- Schedule activities and define milestones of the project online.
- Produce Gantt Chart for the schedule prepared for the project
- Fetch data from e-MB and automatically produce actual work progress against the baseline schedule.
- Linked to IFMIS to trigger payment upon completion of the milestone.
- Estimation toolkit to share the estimate to the authorities for approvals and review.
- Raise request to different authorities such as estimate preparation/revision, publish tender etc.
- Send/ receive drawings from design wing/consultants/ engineers online.
- Put comments on the drawings online and revert it back to the architect/ consultant / engineers.
- Approve drawings online with provision of digital signature.

- Linked to a data repository where drawings and estimates gets saved for the project.
- Publish reports on the basis of dates, progress, project details, year, TS, AA, contract value, project completion time, project start/ completion date, project type and name of the contractor/architect/consultant.

4.1 PROJECT OBJECTIVES

MPPWD is looking to transform its modus-operandi and deliver quality amidst cost constraints, resource constraints and other risks. The main purpose of IPMS is to support and assist MPPWD in attaining efficient functioning and moving away from the redundant legacy and cumbersome processes. The objectives of IPMS are as follows:

- Automation of functioning and working practices across the levels.
- Optimization of processes to increase productivity and save time.
- Improve internal administration and achieve greater transparency in works management.
- Map cross-functional communication channels to remove redundancies and irrelevant processes.
- Develop a mechanism for well-informed decision making at all the levels.
- Improve productivity of engineers and support staff by reducing cycle time.
- Reduce administrative workload from Engineers and allow them to spend more time in field for quality supervision.
- Undertake capacity building and change management for increasing workforce efficiency.
- Achieve better collaboration, seamless information exchange and inter-unit coordination.

4.2 STAKEHOLDERS

The major stakeholders of this Project are as follows:

1. MP Public Works Department
2. MP Road Development Corporation
3. Contractors/Consultants
4. Department of Information Technology, Govt. of MP
5. Other Government Agencies
6. Citizens and Public Representatives

Stakeholder Group	Roles and Responsibilities	Level of Influence
MP Public Works Department and MP Road Development Corporation	Being owner of the project, MPPWD and MPRDC are responsible for successful implementation and functioning of the project. MPPWD and MPRDC would be the biggest beneficiary of this project because it is all about automation of their core functioning.	High
Contractors/ Consultants	Contractors and consultants are appointed by MPPWD and MPRDC to perform construction, designing and planning activities. Automation of functioning will certainly facilitate them to perform better.	High
Department of Information Technology	Department of IT owns critical IT infrastructure like State Data Center (SDC) and State-Wide Area Network (SWAN). SDC will host IPMS on Cloud while SWAN will provide connectivity with field offices.	Medium
Other Government Agencies	Government Agencies approach MPPWD for construction of buildings. Most of government buildings are constructed by PWD and maintained by them as well. IPMS will certainly help government agencies to track progress of their projects better.	Medium
Citizens and Public Representatives	IPMS will ensure better planning and timely implementation of the projects. This will directly benefit the citizens of Madhya Pradesh. Public Representatives will also be able to ensure that critical demands of their area/constituency are addressed and implemented timely.	Medium

Part I: Instructions to Bidders

5 Instructions to Bidders

5.1 DEFINITIONS

- "**Application**" means the Application developed or Solution customized, tested, deployed and changed/improved during project duration by the Implementing Agency for the purposes of rendering services to the stakeholders of the Project as per agreed performance standards and levels.
- "**Applicable Laws"** means any statute, law, ordinance, notification, rule, regulation, judgment, order, decree, bye-law, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision of, or determination by, or any interpretation or administration of the Purchaser as may be in effect on the date of the execution of the Agreement and during the subsistence thereof, applicable to this Project.
- "**Bidders**" means the agencies participating and submitting their bids as per the bid time schedule.
- "**Confidential Information**" means all information including Project Data (whether in written, oral, electronic or other format) which relates to the technical, financial and business affairs, customers, bidders, products, developments, operations, processes, data, trade secrets, design rights, know-how and personnel in connection with this Bid Document.
- "**Contract Value**" is the bid value which means the price accepted by the MPPWD as per Price Schedule.
- "**Competent Authority**" is the official within MPPWD legally authorized to perform all the necessary roles and functions pertaining to this Bid Document.
- "**Deliverables**" means the products and services agreed to be delivered by the Successful Bidder in pursuance of the agreement as elaborated in Scope of Work.
- "**Go-Live**" means the date of issuance of Certificate of Completion by MPPWD.
- "**Implementing Agency (IA**)" means the Successful Bidder who signs the contract with MPPWD for studying, designing, developing, implementing, operating and maintaining the solution deployed for the Integrated Project Management System (IPMS) as described in the Bid document.

- “**Project**” means the Integrated Project Management System (IPMS) application software designed, developed, implemented and maintained by the implementing agency for MPPWD.
- "**MPPWD**" means the Public Works Department, Govt. of Madhya Pradesh.
- "**MPPWD-PIU**" means and refers to the Project Implementation Unit, a separate vertical formulated under Public Works Department for Building Works.
- "**Purchaser**” or “**Authority**” refers to the Madhya Pradesh Public Works Department, Govt of MP.
- “**Project Data**” means all proprietary data of project generated out of project operations and transactions, documents and related information including but not restricted to user data which the Bidder obtains, possesses or processes in the context of providing the services.
- “**Project Duration**” refers to the period of this project for which this RFP is being issued.
- "**Project Implementation Committee**" means the Committee headed by the Engineer in Chief, MPPWD and empowered to take all decisions with regard to the Implementation as well as the Monitoring of the Project. Additionally, the Committee will also be responsible for deciding on any addition/deletion/alteration/modification in the scope of work or any feature in the software for the successful implementation of the project as well as for ensuring that the resultant price adjustments, if any, are in line with the unit price quoted by the bidder under the contract.
- “**Project Site**” means the site/locations where the Project Activities will be performed.
- "**Selection Committee**" means the committee constituted by MPPWD for bid evaluation and selection of most appropriate bidder as per procedures and provisions articulated in this RFP.
- “**Services**” means the services delivered to the stakeholders of the project using the tangible and intangible assets created, procured, installed, managed and operated by the Implementing Agency.
- “**Service Level**” means the level of service and other performance criteria that will apply to the Services as set out in this RFP.

- "S**ervice Level Agreement (**SLA)" means the Operation and Maintenance SLA, to be executed by the Implementing Agency, in terms of the Service Level Requirements set out in the Contract.
- "**Solution**" means study, plan, design, develop, procure, customize, install, configure, and maintain entire application software and hardware under this project for MPPWD.
- "**State Government**" means the Government of Madhya Pradesh.

5.2 BID INVITING AUTHORITY & ADDRESS FOR COMMUNICATION

Bid Inviting Authority:	Chief Engineer, Procurement, MPRDC
Address for Communication:	**Chief Engineer,** Procurement Section MP Road Development Corporation Phone No Email: Address: Jail Road, Arera Hills, Bhopal, Madhya Pradesh, 462011

5.3 BIDDING PROCESS DETAIL

1. Complete bidding process has been divided into following parts, namely:
   a) Issuance of NIT
   b) Sale of Bid document
   c) Submission of pre-bid queries by bidders
   d) Pre-Bid meeting & issuance of corrigendum, if any
   e) Submission of bids
   f) Opening Pre-Qualification Documents and Technical Bids
   g) Presentation by bidders
   h) Technical Evaluation
   i) Opening of Financial Bids
   j) Bid Evaluation on QCBS
   k) Issue of Letter of Award (LOA)
   l) Signing of Agreement
2. Bidders are advised to study all instructions, forms, terms, requirements and other information in the RFP documents carefully. Submission of Bid shall be deemed to have

been done after careful study and examination of the RFP document with full understanding of its implications.

3. Failure to furnish all information required by the RFP documents or submission of a proposal not substantially responsive to the RFP documents in every respect shall be at the Bidder's risk and may result in rejection of its Proposal.
4. Without prejudice to the generality, Purchaser reserves the right to reject any Proposal if:
    a. At any time, a material misrepresentation is made or discovered; or
    b. The Bidder does not provide, within the time specified by the Authority, the supplementary information sought for evaluation of the Proposal.
    c. Misrepresentation/improper response by the Bidder is found, which may further lead to the disqualification of the Bidder. If such disqualification/rejection occurs after the Proposals have been opened and the highest-ranking Bidder gets disqualified / rejected, then purchaser reserves the right to consider the next best Bidder, or take any other measure as may be deemed fit in the sole discretion of purchaser, including annulment of the selection process.

5.4 AVAILABILITY OF BID DOCUMENT

1. Interested eligible bidders may obtain the bid documents online from e-tender portal www.mptenders.gov.in. The tender will be available on e-tender portal as per time and date mentioned in the data sheet.

5.5 BID DOCUMENT FEE

1. Bidders are required to pay bid document fee, as mentioned in datasheet above, online on www.mptenders.gov.in for participating in the bid.

5.6 BID SECURITY

2. The Bidder shall furnish as part of its Bid, a Bid Security of the amount as mentioned in datasheet above (the "Bid Security") online on the e-Tendering portal (www.mptenders.gov.in). In the absence of Bid Security, a Bid shall be considered non-responsive and shall not be considered for selection.
3. Unsuccessful Bidder's Bid Security will be returned within 30 days from signing of agreement with Successful Bidder. The Successful Bidder's Bid Security will be discharged upon the Bidder's signing the Contract Agreement and furnishing the Performance Security.
4. The Bid Security may be forfeited:

5. If a Bidder withdraws its Bid during the period of Bid validity specified in this bid document; or
6. In case of any variation between the Financial Bid and the Technical Bid, the Bidder will be asked to amend the Financial Bid to bring it in line with the Technical Bid. If the Bidder refuses or fails to amend the Financial Bid to the satisfaction of the Selection Committee, it will be presumed that its Bid has been withdrawn during validity period and its Bid security will be forfeited.
7. In case the Successful Bidder fails to sign the Contract as specified in this bid document or fails to furnish Performance Security as specified in this bid document.
8. No interest shall be payable on Bid Security under any circumstances.

5.7 PRE-BID MEETING

1. Pre-bid Meeting shall be conducted on the date and time at the venue mentioned in the datasheet. Prospective bidders can join Pre-bid conference through their authorized representatives not more than 2 persons.
2. Bidders are required to submit the queries/clarifications/suggestions in writing (editable MS Word format) to specified e-mail address mentioned in the data sheet in given format (**Appendix 1: Request for Clarification**) at least one day in advance from the date of pre-bid meeting. Any requests for clarifications post the indicated date and time may not be entertained.
3. In the pre-bid conference, the MPRDC and MPPWD Officials would address clarifications sought by bidders with respect to the RFP document and the project. Clarifications that require internal consultation, would be addressed in written and uploaded only on the e-Tendering portal.
4. MPPWD and MPRDC reserves the right not to respond to any/all queries raised or clarifications sought if, in their opinion and at their sole discretion, they consider that it would be inappropriate to do so or do not find any merit in it.
5. All responses to the Pre-bid queries and amendments (if any) would be uploaded only on www.mptenders.gov.in. Bidders are advised to regularly visit the e-Tendering portal for updates.

5.8 AMENDMENT OF BID DOCUMENT

1. At any time prior to the deadline for the submission of Bids, the MPRDC may, for any reason, whether on its own or in response to a clarification requested for by any prospective Bidder, modify the Bid Document by way of issuing corrigendum(s).

2. In order to allow reasonable time to the prospective Bidders for taking into account such amendment(s), in the preparation of their Bids, the MPRDC, at its discretion, may extend the deadline for the submission of Bids, any time but not compelled to do so.
3. All the amendments/corrigendum (if any) would be uploaded on www.mptenders.gov.in

5.9 PREPARATION OF TECHNICAL PROPOSAL

1. The Technical Bid must not contain any pricing information. The Technical Proposal should contain a detailed description of how the bidder will provide the required services outlined in this Bid. It should articulate in detail, as to how the Bidder's technical solution meets the requirements specified in the Bid.
2. If a Bidder wishes to propose additional services (or enhanced levels of services) beyond the scope of this Bid, the Technical Proposal must include a description of such services as a separate attachment to the Bid. Any information submitted, additional to the required response should be marked as 'Supplementary' and will be furnished as separate section.
3. The Technical Bid should entail the details of tasks to be performed as per scope of work and technical specifications as given in the RFP. Following are the essential parts of the technical proposal to be submitted by interested bidders:
   - 3.1. Overview of the proposed solution that meets the requirements specified in the Bid
   - 3.2. Detailed description of the solution, capability of providing desired solution with minimum customization and instances of successful implementation of similar solutions
   - 3.3. Details of ready to deploy (after customization) Product.
   - 3.4. Proposed Solution architecture
   - 3.5. Technical architecture
   - 3.6. Scalability and Performance Requirements
   - 3.7. Operational environment
   - 3.8. Implementation methodology, project plan and implementation schedule
   - 3.9. Project team structure, size and capability (Total Staffing plan including numbers)
   - 3.10. Project Management, reporting and review methodology
   - 3.11. Quality standards and assurance process to be followed
   - 3.12. Risk Identification/mitigation strategies
   - 3.13. Training & change management strategies

3.14. Data Digitization/Migration Strategies and plan with schedule.

3.15. Key Deliverables (along with example deliverables, where possible).

4. Any material deviation(s) between Technical and Financial Bid, that is compromising quality of performance or detrimental to the interest of MPPWD and MPRDC, shall be treated as unresponsive and lead to disqualification of the bidder. Selection Committee reserves the right to take appropriate action in this regard.

5.10 FINANCIAL PROPOSAL

1. The Bidder shall indicate item-wise prices on the prescribed Financial Bid Price Schedule as mentioned in the datasheet, in Indian Rupees only.
2. The Bidders are required to ensure that the products quoted are as per prescribed specification, industry standard and is compatible with latest software, application software and networking equipment, etc.
3. The Bidders are required to quote their best prices, inclusive of all applicable taxes, levies, freight, forwarding, handling, insurance, inland transportation, local costs etc. incidental to the delivery of goods/services to their final destination at all project sites and for its installation, configuration, tuning, testing, integration, commissioning and maintenance charges after "Go-Live" and training of personnel required. GST will be paid extra at actual.
4. Financial bid is divided into two parts A & B i.e. Project Implementation Cost and Operation & Maintenance Cost. Total value of both costs shall be considered for evaluation purpose.
5. The required products and equipment quoted by the bidders must have its specifications equivalent to or superior then those mentioned in the Bid Document. In case of any difference in specification of an item with those in the Bid Document, the Selection Committee shall decide whether specifications of offered product are equivalent/ superior or not and its decision will be final and binding.
6. During the course of contract period, the Bidder, with the consent of MPPRDC, may supply a superior compatible version, or higher configuration, meeting or exceeding technical specifications of the contract after obtaining written approval for same from MPRDC, without any extra cost payable by MPRDC.
7. The rates offered by the Bidder should be firm and free from all escalations. Prices quoted by the Bidder shall be fixed during Bidder's performance of the Contract and shall not be subject to variation on any account. A Bid submitted with a price adjustment/variation provision will be treated as non-responsive and rejected, pursuant to the Preliminary Examination clause mentioned in this bid document.

8. Bidder must submit item-wise prices for all items given in respective form. These item-wise prices will be used for calculating the value of deviations, reductions/ increase in quantity & deletion of items altogether.

5.11 BID VALIDITY PERIOD

1. Bids shall remain valid for the period as mentioned in the Data Sheet after the date of Bid Submission. A Bid valid for a shorter period may be considered as nonresponsive and shall be rejected.
2. The MPRDC may solicit the Bidder's consent to an extension of the period of Bid validity. The request and the responses thereto shall be made in writing. The Bid Security provided shall also be suitably extended. A Bidder may refuse the request without getting its Bid Security forfeited.
3. A Bidder granting the request, will neither be required nor permitted to modify his Bid.

5.12 APPLICATION AND INTERPRETATION OF CLAUSES

1. For interpretation of any clause in the Bid Document or Contract Agreement, the interpretation of the Selection Committee shall be final and binding on the Bidder.

5.13 COMPLETENESS OF BID DOCUMENT

1. The documents comprising the Bid to be mandatorily submitted by the Bidder, shall include following:

   1.1. Online payment receipt of Bid Security (EMD)
   1.2. Bid Covering Letter (Annexure A)
   1.3. Bid Form (Annexure B)
   1.4. Pre-qualification Form (Annexure C)
   1.5. Technical Bid Covering Letter (Annexure D)
   1.6. Project Citation Form (Annexure E)
   1.7. Detail of Projects for Technical Evaluation (Annexure F)
   1.8. Undertaking by the HR manager/Authorized officer (Annexure G)
   1.9. Proposed Work Plan (Annexure H)
   1.10. Financial Bid Covering Letter (Annexure I)
   1.11. Financial Bid- Item-wise Price Schedule (Annexure J)
   1.12. Details of Components offered (Annexure L)
   1.13. Format for Profile of Key Resources (Annexure M)
   1.14. Format for list of Professionals to be deployed (Annexure N)
   1.15. Power of Attorney for Authorized Signatory (Annexure O)
   1.16. Self-Declaration for Non-Blacklisting(Annexure P)
   1.17. Certificate of Conformity (Annexure Q)
   1.18. OEM Authorization Form (Annexure R)

1.19. Power of Attorney to Lead Bidder (in case of Consortium)
1.20. Consortium Agreement Form (in case of Consortium)

2. The Bidders are expected to examine all instructions, forms, terms, project requirements and other information provided in the Bid document. Failure to furnish any information required by the Bid or submission of a Bid not substantially responsive in every respect will be at the Bidder's risk and may result in rejection of the Bid and forfeiture of the Bid Security.

5.14 CODE OF INTEGRITY

1. No official of the MPPWD and MPRDC or any Bidder shall act in contravention of the codes which include:

1.1. prohibition of

- making offer, solicitation or acceptance of bribe, reward or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process.
- Any omission, or misrepresentation that may mislead or attempt to mislead so that financial or other benefit may be obtained or an obligation avoided.
- any collusion or bid rigging or anticompetitive behavior that may impair the transparency, fairness and the progress of the procurement process.
- improper use of information provided by the procuring entity to the bidder with an intent to gain unfair advantage in the procurement process or for personal gain.
- any financial or business transactions between the bidder and any official of the procuring entity related to tender or execution process of contract; which can affect the decision of the procuring entity directly or indirectly.
- any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process.
- obstruction of any investigation or auditing of a procurement process.
- making false declaration or providing false information for participation in a tender process or to secure a contract;

1.2. disclosure of conflict of interest.

1.3. disclosure by the bidder of any previous transgressions made in respect of the provisions of sub-clause (a) with any entity in any country during the last three years or of being debarred by any other procuring entity.

2. In case of any reported violations, if the Purchaser, after giving a reasonable opportunity of being heard, concludes that a bidder or prospective bidder, as the case may be, has contravened the code of integrity, may take appropriate measures.

5.15 LANGUAGE OF BID

The Bid prepared by the Bidder, the correspondences as well as all the document relating to the Bid exchanged between the Bidder and the MPRDC, shall be in English language. Supporting documents and printed literature furnished by the Bidder may be in some other language, provided, they are accompanied by an accurate translation of the relevant passages in English.

5.16 BIDDER'S AUTHORIZED SIGNATORY

A Proposal should be accompanied by an appropriate board resolution and/or Power of Attorney in the name of an Authorised Signatory of the Bidder (Annexure "O"). A copy of the same should be uploaded under the relevant section/folder on the e-Procurement portal.

5.17 BID SUBMISSION

1. Bids must be direct, concise, and complete. All information not directly relevant to this RFP should be omitted. Technical Committee shall evaluate the bid based on its clarity and the correctness of its response to the requirements of the project as outlined in this RFP.

2. The bids shall be submitted online on www.mptenders.gov.in only as per the formats given below and as per date and time mentioned in the Bid data sheet. **No physical submission is required.**

5.18 FORMAT FOR SUBMISSION

1. **EN-01 EMD, Tender Fee and Bid Covering Letter:**

    1.1. Online Payment of EMD and Tender Fee (eTender Portal Screenshot in PDF).

    1.2. Bid Covering Letter (Annexure A) in PDF Format.

    1.3. Annexure O: Power of Attorney for bid signing and submission.

    1.4. Annexure S: Power of Attorney to Lead Bidder (in case of consortium)

    1.5. Annexure T: Consortium Agreement Form (in case of consortium)

2. **EN-02 Pre-qualification Bid:**

    The PDF file, should be titled as “Pre-qualification – Integrated Project Management System” and include the documents listed below:

    2.1. Annexure B: Bid Form

    2.2. Annexure C: Pre-Qualification Form - Checklist as per the eligibility criteria.

    2.3. Copy of all necessary documentary proof or credential as required to fulfill eligibility criteria.

3. EN-03 Technical Bids:

A PDF file titled as “Technical Bid – Integrated Project Management System” and contain the documents listed below:

3.1. Annexure – D : Technical Bid Covering Letter

3.2. Annexure – E : Project Citation Form

3.3. Annexure – F : Detail of Projects

3.4. Annexure – G : Undertaking by the HR manager/Authorized officer

3.5. Annexure – H : Proposed Work Plan

3.6. Annexure – L : Details of Components Offered

3.7. Annexure – M : Profile of Key Resources

3.8. Annexure – N : Format for List of Professionals to be deployed

3.9. Annexure – P : Self-Declaration

3.10. Annexure – Q : Certificate of Conformity

3.11. Annexure – R : OEM Authorization Form

3.12. Proposed Solution (as described above under the heading "Preparation of Technical Proposal")

4. EN-04 Financial Bid:

4.1. No Condition - Conditional bid shall summarily be rejected.

4.2. The PDF file titled as “**Financial Bid – Integrated Project Management System**” shall be uploaded electronically and would include Annexure I: Covering Letter – Financial Bid (Format). Item Wise Price Schedule (Annexure J) shall be uploaded in MS Excel sheet format, which is available on eTender Portal.

4.3. The Bidder shall indicate the prices for various items mentioned in Annexure-J as described in price schedule. The Bidder can quote separately for additional features that are desirable for better performance of the project and are not considered under the scope of this work. However, the final Bid price shown by the Bidder for complete work (excluding additional feature) shall be treated as the Bid price for the project, for comparison of Bids.

4.4. Unless expressly indicated, Bidder shall not include any technical information regarding the services in the Financial Bid. Additional information may be submitted to accompany the proposal. In submitting additional information, it should be marked as ‘Supplementary’ to the required response. Prices shall be quoted entirely in Indian Rupees and must separately indicate all applicable taxes and levies.

5.19 GENERAL INSTRUCTIONS

1. While every effort has been made to provide comprehensive and accurate background information, requirements and specifications, Bidders must form their own conclusions about the solution needed to meet the requirements.
2. All information supplied by Bidders shall be treated as contractually binding on the Bidders. On successful award of the assignment by MPRDC, the same information shall be the basis of the contract.
3. This RFP supersedes and replaces any previous public documentation & communications, and Bidders should place no reliance on such communications.
4. MPRDC shall open the bids as per date and time specified in the bid data sheet. MPRDC reserves the right to postpone or cancel a scheduled Tender opening at any time.
5. Each bidder shall submit only one Proposal. The bidder who submits more than one Proposal will be disqualified.

5.20 CONFLICT OF INTEREST DURING BID PROCESS

1. A Bidder shall not have a conflict of interest that may affect the Selection Process or the Solution delivery (the “Conflict of Interest”). Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, MPRDC shall forfeit and appropriate the EMD, if available, as mutually agreed genuine pre-estimated compensation and damages payable to the MPRDC for, inter alia, the time, cost and effort of the MPRDC including consideration of such Bidder’s Proposal, without prejudice to any other right or remedy that may be available to the MPRDC hereunder or otherwise.
2. Without limiting the generality of the above, Bidder shall be deemed to have a Conflict of Interest affecting the Selection Process, if:

   2.1. the Bidder or its sub-contractors have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding or ownership interest of any Bidder in the sub-contractor is less than 5% (five per cent) of the subscribed and paid up equity share capital thereof. For the purposes of this Clause, indirect shareholding held through one or more intermediate persons shall be computed as follows:

      I. where any intermediary controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “Subject Person”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person;

II. where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this Sub-clause if the shareholding of such person in the intermediary is less than 26% (twenty six per cent) of the subscribed and paid up equity shareholding of such intermediary;

2.2. a constituent of such Bidder is also a constituent of another Bidder; or

2.3. such Bidder or its subcontractor receives or has received any direct or indirect subsidy or grant from any other Bidder or subcontractor; or

2.4. such Bidder has the same legal representative for purposes of this Application as any other Bidder; or

2.5. such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each others' information about, or to influence the Application of either or each of the other Bidder; or

5.21 DISQUALIFICATION

1. MPRDC may at its sole discretion and at any time during the processing of bid, disqualify any Tender from the bid process if: -

1.1. The bid is not submitted in accordance with this document.

1.2. The bidder fails to meet the eligibility criteria as mentioned in this RFP

1.3. During validity of the bid or its extended period, if any, the bidder increases his quoted prices.

1.4. Bidder has submitted conditional bid.

1.5. Bidder has made misleading or false representations in the forms, statements and attachments submitted in proof of the eligibility requirements.

1.6. Bidder is found to have a record of poor performance such as abandoning work, not completing the contract, inordinately delaying completion, being involved in litigation or financial failures, etc.

1.7. Bidder has failed to provide clarifications related thereto, when sought.

1.8. Bidder has submitted more than one bid. This will cause disqualification of all bids submitted by such bidder.

1.9. Any Bidder(s) is found to canvass, influence or attempt to influence in any manner for the qualification or selection process, including without limitation, by offering bribes or other illegal gratification shall be disqualified from the process at any stage.

2. Bidders may specifically note that while processing the bid documents, if it comes to MPRDC's knowledge expressly or implied, that some bidders may have colluded in any manner whatsoever or otherwise joined to form a cartel resulting in delay/holding up the processing of tender, then, the bidders so involved are liable to be disqualified for this contract as well as barred for a further period of two years from participation in any of the tenders floated by any department of Govt. of MP.

5.22 BID EVALUATION

1. A three-stage procedure will be adopted for evaluation of proposals, with the pre-qualification being completed before the technical evaluation and thereafter financial proposals being opened and compared. Evaluation of bids received in response to this RFP, shall be evaluated by the Selection Committee constituted by the Principal Secretary of MPPWD.
2. Selection Committee shall examine the bids to determine whether they are complete, whether any computational errors have been made, and whether the bids are generally in order. If there is any discrepancy or arithmetical error between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the errors, the bid shall be rejected. If there is a discrepancy between words and figures, the amount in words shall prevail.
3. The Selection Committee may conduct clarification meetings with each or any bidder to discuss any matters, technical or otherwise.
4. Bid document shall be evaluated as per the steps detailed in subsequent headings. Any Conditional bids shall be summarily rejected.

5.23 PRE-QUALIFICATION (PQ) CRITERIA

Sr. No.	Qualification Parameters	Specific Requirement	Documents Required
1	Legal Status	Bidder (Lead Bidder in case of consortium) shall be a Company registered under the Companies Act 2013 or Partnership firm registered under the Partnership Act of 1932 or registered (converted to) under the	Copy of valid Registration Certificates OR Copy of Certificates of Incorporation, Copy of

		Indian Limited Liability Partnership Act, 2008. Bidder must have at least 5 years of experience in providing IT services in India.	PAN, Copy of GST Certificate.
2	Consortium	Consortium is allowed only upto 2 partners (Lead + 1) for Data Digitization and Manpower services only.	Copy of Consortium Agreement and Power of Attorney to Lead Bidder
3	Financial Strength	Bidder (Lead Bidder in case of consortium) must have annual average turnover of Rs. 25 Crore or more from IT and ITES Services and Consortium Partner (if any) should have annual average turnover of Rs. 5 Crore or more in last three financial years as 2020-21, 2021-22 and 2022-23. Only audited financial statements will be considered for evaluation purposes. If accounts are not audited for the FY 2022-23, last there financial years will be acceptable as FY 2019-20, 2020-21 and 2021-22	Certificate from Statutory Auditor certifying required turnover from IT/ITES Services along with a copy of Financial Statements showing annual turnover along with Audited Balance Sheets of last three financial years.
4	Technical Strength	Bidder (Lead Bidder in case of consortium) must have successfully Developed/Customized and implemented **IT/Web based Project Management System** for any Civil Infrastructure (Road, Building, Bridge, Rail, Dam, Canal or Pipeline) Development Agency or Department under State or Central Government in last 10 years from the date of this NIT. Project Value of such Project(s) must be at least **Rs. 12 Crores (Twelve Crore) for 1 Project**, OR **Rs. 8 Crores**	The bidder should attach copies of the customer Work Order/completion certificates/performance fulfillment certificate of relevant assignments issuedby respective clients. For ongoing projects, bidders are required to submit declaration of total payment received against that project, till the dated of bid submission.

		(Eight Crore) for each of 2 Projects, OR **Rs. 6 Crore (Six Crore) for each of 3 Projects.** Note 1: Only IT/Web based Project Management Systems that include interfaces for Work Estimation, Work Breakdown Structure based Project Plan, Contract Management and E-Measurement Book, shall be considered for evaluation. Note 2: Ongoing projects are also eligible only if payment received against such project(s) is more than the minimum value defined for edibility in the category.	
5	Manpower Strength	Bidder (Lead Bidder in case of consortium) should have a team of at least 100 IT/ICT professionals on its regular payroll for software development as on the date of publication of this NIT	An undertaking on the Letterhead of the Company by the HR manager /Authorized officer of the company/Firm should be furnished.
6	Certifications	Bidder (Lead Bidder in case of consortium) must have ISO 9001:2015 and CMMi Level 3 certification.	Copy of Certificate valid on the date of bid submission, should be submitted. The certifications shall need to be kept valid throughout the duration of contract period.
7	Debarment	Bidder (all the members in case consortium) must not have been blacklisted/debarred by any Government Department/ PSU/ Agency in India.	Self-certification by authorized signatory of the bidder.

5.24 PRELIMINARY EXAMINATION

1. Preliminary Examination shall involve assessment of EN-01 and EN-02 as specified above. The submitted documents shall be examined to determine whether the bidder meets the eligibility criteria, completeness of the bid, whether the documents have been properly signed by the authorized signatory and whether the bids are generally in order.
2. MPRDC/Selection Committee reserves the right to seek information/clarifications from the bidders. Any bids found to be non-responsive for any reason or not meeting the minimum levels of eligibility criteria specified in the various sections of this RFP Document, shall be rejected and not included for further selection process.
3. Before starting evaluation, the Bids will be examined to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.
4. The Selection Committee may waive any minor infirmity or non-conformity or irregularity in a Bid which does not constitute a material deviation, provided such a waiver does not prejudice or affect the relative ranking of any Bidder.
5. Prior to the detailed evaluation, the Selection Committee will determine the substantial responsiveness of each Bid to the bidding documents. For purpose of these Clauses, a substantially responsive Bid is one, which conforms to all the terms and conditions of the bid documents without material deviations. A bid is considered substantially responsive if it does not contain any "Major Deviations" from the bidding documents or conditions which cannot be determined reasonably in terms of monetary value for financial adjustment. A major deviation is one which (a) has an effect on the validity of the bid; or (b) has been specified in the bidding documents as grounds for rejection of the bid; or (c) is a deviation from the commercial terms or the technical specifications in the bidding documents whose effect on the bid price is substantial but cannot be given a monetary value.
6. If the Selection Committee determines that a Bid is materially deviating from the prescribed terms and conditions, then the matter may be referred to Managing Director, MPRDC to decide whether the deviations of the Bid are material or not. Decision of the Managing Director regarding this, shall be final and binding on all the bidders.
7. The Selection Committee’s determination of a Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.
8. If a Technical Bid is determined as not substantially responsive, the Selection Committee will reject it and in such a case, Financial Bid will not be opened.

5.25 TECHNICAL EVALUATION CRITERIA

1. Technical proposals will be evaluated using the following criteria:

Sr. No.	Technical Parameter for Lead Bidder only in case of Consortium	Max score
1	Number of years of operation in India in IT/ITES services: Equal or More than 5 Years **(70 Marks)** Equal or More than 7 Years **(85 Marks)** Equal or More than 10 Years **(100 Marks)**	100
2	Annual average turnover from IT/ITES Services in last three financial years: Equal or More than 25 Crore **(70 marks)** Equal or More than 37 Crore **(85 marks)** Equal or More than 50 Crore **(100 Marks)**	100
3	Team of Developers/Technical experts on its regular payroll: Equal or More than 100 Developers/Technical Experts **(140 marks)** Equal or More than 150 Developers/Technical Experts **(170 marks)** Equal or More than 200 Developers/Technical Experts **(200 marks)**	200
4	Successful Development/Customization and implementation of IT/Web based Project Management System for any Civil Infrastructure (Road, Building, Bridge, Rail, Dam, Canal or Pipeline) Development Agency or Department under State or Central Government in last 10 years from the date of this NIT. Value of such projects should be at least Rs. 6 Crore: Equal or More than 3 Projects **(140 Marks)** Equal or More than 5 Projects **(170 Marks)** Equal or More than 7 Projects **(200 Marks)**	200
5	Successful Development/Customization and implementation of at least One IT/Web based Project Management System for any Central or State PWD or Government Agency Engaged in Construction of Roads/Buildings in last 10 years from the date of this NIT. Value of such projects should be at least Rs. 6 Crore. **(100 Marks)**	100
6	Profile of Key Resources to be deployed during implementation phase: **a) Project Manager - 50 Marks** • **Education Qualification – 20 marks** 15 Marks for BE/B.Tech/MCA qualification 5 Marks for MBA/ME/M.Tech Qualification • **Total Years of Experience – 15 marks** 10 Marks for 10 years of experience and additional 1 mark for each additional year of experience upto 15 marks	100

Sr. No.	Technical Parameter for Lead Bidder only in case of Consortium	Max score
	• **Experience of working on IT Projects with Road or Building Construction Dept./Govt. Agency – 15 Marks** 10 Marks for 5 years of experience and additional 1 mark for each additional year of experience upto 15 marks **b) System Analyst (for Road & Bridge PMS) – 25 Marks** • **Education Qualification – 10 marks** 7 Marks for BE/B.Tech/MCA qualification 3 Marks for MBA or BE (Civil) Qualification • **Experience of working on IT Projects with Road and Bridge Construction Dept./Govt. Agency – 15 Marks** 10 Marks for 5 years of experience and additional 1 mark for each additional year of experience upto 15 marks **c) System Analyst (for Buildings PMS) – 25 Marks** • **Education Qualification – 10 marks** 7 Marks for BE/B.Tech/MCA qualification 3 Marks for MBA or BE (Civil) Qualification • **Experience of working on IT Projects with Building Construction Dept./Govt. Agency – 15 Marks** 10 Marks for 5 years of experience and additional 1 mark for each additional year of experience upto 15 marks	
7	Technical Presentation of Proposed Solution and Live demonstration similar project implemented for other agencies: 1. Quality and Comprehensiveness of Proposed Solution and Organizational Strength (100 Marks) 2. Live Demonstration of similar project implemented in Govt agencies engaged for Civil Construction work (100 Marks)	200
	Total	**1000**

2. Bidders will be required to make a presentation of their credentials and proposed solution with live demonstration similar project implemented for other agencies. Total 40 minutes will be provided to each qualified bidder to make presentation and live demonstration. Date, time and venue of the presentation will be communicated separately.
3. Following are the essential components of the presentation:
   - Organizational Strength
   - Proposed Solutions and implementation methodology
   - Operational Plan and Resource Deployment.
   - Training and Data Digitization/Migration Strategy and Plan

- Deliverables and Timelines
- Live Demonstration of previous successful implementation for other agencies.

4. The Financial Bids of only those bidders, who have scored at least 700 marks in technical bid evaluation process, will be considered for Financial Bid evaluation.
5. If the number of total participating bidders are more than three but the technically qualified bidders are less than three, to ensure better competition at the financial bid stage, the Selection Committee may use its discretion to relax the minimum qualifying marks upto 600 marks so as to qualify at least three bidders.

5.26 OPENING & COMPARISON OF FINANCIAL BIDS

1. All the qualified bidders shall be formally informed about Financial Bid opening event.
2. The Financial Bid of only Technically Qualified bidders, who have achieved minimum threshold marks, will be opened. The decision of the Selection Committee in this regard, shall be final.
3. Bidders are required to quote for all the items as mentioned in the Price Schedule (Annexure "J"). Therefore, any Bid which does not contain the quotation for all items may be considered as non-responsive and rejected.
4. The Selection Committee will evaluate each of the technically qualified bids on the basis of QCBS method. The weightage of the Technical and Financial scores, will be in the ratio of 70:30 respectively. For calculation of the combined technical and financial scores, following formula shall be used:

   Total Score = [(Technical Score x 0.70) + ((LP/OP x 1000) x 0.30)]

   Where LP is the Lowest Price offer of the Technically Qualified Bidders and OP is the Offer Price of the bidder being evaluated.

5. Bidder scoring highest “Total Score” as per above formula, will be considered as most responsive bidder and recommended for selection by the Selection Committee to the Managing Director, MPRDC.
6. Managing Director, MPRDC reserves the right to not to award the contract to the bidder scoring highest "Total Score" and recommended by Selection Committee, without assigning any reasons thereof.
7. If required, Managing Director, MPRDC may vary quantity or number of items mentioned or both from the list of BOM (Specially for items for which item wise rates are asked separately).

5.27 RIGHT TO ACCEPT OR REJECT ANY OR ALL BIDS

The Managing Director, MPRDC reserves the right to accept or reject any Bid, and to annul the Bid process and reject all the Bids at any time prior to the award of contract, without thereby incurring any liability to the affected Bidder or any obligation to inform the affected Bidder of the grounds for the MPRDC's action.

5.28 AWARD OF CONTRACT

Contract will be awarded by MPRDC to the responsive Bidder whose Bid conforms to the requirements and is, in the opinion of the Selection Committee, the most advantageous and represents the best value to the project, price and other factors considered. Evaluations will be based on the Bids, and any additional information requested by the Selection Committee or Managing Director, MPRDC.

5.29 RIGHT TO VARY ACTIVITIES AT THE TIME OF AWARD

The MPRDC shall have the right to make any alterations, omissions, additions or subtractions in items, their quantities along with technical specifications and/or BoM at the time of award of contract. The quantities can be altered without any change in the unit price or other terms and conditions. MPRDC may even vary the break-up of overall quantities of an item for techno-commercial reasons. MPRDC will give such intimation to the Successful Bidder, and additional cost/deduction in the Bid prices, based on the price schedule submitted by him, will be worked out with the Bidder.

5.30 NOTIFICATION OF AWARD TO THE SUCCESSFUL BIDDER

The MPRDC shall notify the Successful Bidder in writing by sending Letter of Acceptance (LoA) by post and email. Successful Bidder shall acknowledge in writing, its receipt of the Notification of Award and will send his acceptance to enter into agreement within Fifteen (15) days.

5.31 PERFORMANCE SECURITY

1. Within 21 days from the receipt of notification of award, the Successful Bidder shall furnish Performance Security equal to 10% of bid value (in the format given at Annexure K), valid up to 60 days after the date of completion of the project term that includes 5 years of Operation and Maintenance period after 'Go Live' of the project.
2. The proceeds of the Performance Security shall be payable to the MPRDC as compensation for any loss(es) resulting from the failure of the Successful Bidder to meet out its obligations under the Contract.

3. The Performance Security shall be furnished in the form of an unconditional and irrevocable Bank Guarantee for Contract Performance in a form and manner acceptable to the MPRDC which would remain valid until such time and be renewable as may be stipulated by the MPRDC.
4. The Performance Security will be discharged by the MPRDC and returned to the Bidder no later than 60 days following the date of completion of the Bidder's performance obligations, as mentioned in the bid document.

5.32 SIGNING OF CONTRACT

1. The notification of the award shall constitute signing of the contract agreement. However, if required, the MPRDC may negotiate certain terms but not financial quotes, with Successful Bidder before signing the contract. The signing of contract will amount to award of contract and bidder will initiate the execution of the work as specified in the contract. If Successful Bidder refuses to accept the Award of work or does not sign the contract agreement within 30 days of acceptance of the Letter of Award, the MPRDC will forfeit the bid security of the bidder and may invite next highest score achieving bidder to sign the agreement.
2. The incidental expenses of execution of agreement / contract shall be borne by the Successful Bidder.

5.33 DISCHARGE OF BID SECURITY

On receipt of the Performance Security and signing of Contract Agreement with the Successful Bidder, Bid Security of the remaining bidders shall be returned at the earliest. Successfully Bidder's bid security shall be released only after necessary verification of Performance Security submitted by it.

5.34 FAILURE TO AGREE WITH THE TERMS AND CONDITIONS OF THE RFP

Failure of the successful Bidder to agree with the Draft Legal Agreement and Terms & Conditions of the RFP, shall constitute sufficient grounds for the annulment of the award, in which event MPRDC may award the contract to the next best value Bidder or call for new proposals from the interested Bidders.

Part II
Scope of Services and Functional & Technical Requirements

6 Scope of Work

It shall be overall responsibility of bidders to study the existing systems and requirements of MPPWD and MPRDC before bidding. Requirements mentioned in this part of RFP are indicative only and written purely for the purpose to assist prospective bidders in estimating efforts and costs required to achieve project objectives successfully. Therefore, Successful Bidder i.e. Implementing Agency (IA) shall be required to make a fresh assessment of MPPWD MPRDC requirements after winning the bid, prepare detailed project plan, get it approved by MPPWD and MPRDC and perform project activities as per detailed project plan. Following are the services to be rendered by the IA:

6.1 PREPARATION OF INCEPTION REPORT

The IA needs to prepare and submit an Inception Report, which will serve as the foundation document for all the activities related to the project. Additionally, the Inception Report must cover the risks that IA anticipates and the plans they propose towards Risk mitigation. Major roles and responsibilities of the project team along with support arrangements that are expected from the MPPWD and MPRDC will be an essential part of the inception report. IA will also describe about the Project Team with individual roles and responsibilities in the Inception Report. The acceptance of the Inception Report by Project Implementation Committee (constituted with MPPWD and MPRDC) is necessary before proceeding to the next stage of the project.

6.2 DEPLOYMENT OF RESOURCES

IA shall deploy a full time Project Manager for the entire duration of project at MPRDC and MPPWD HQ at Bhopal. IA shall share Profile/CV of proposed personnel with MPPWD and MPRDC before deployment. MPRDC and MPPWD shall provide office space for the Project Manager and his/her Team of upto 4 personnel at each location. Project Manager shall be overall responsible for all the project implementation activities and coordination with the Project Management Unit PMU setup by MPRDC. Project Manager should be deployed within a month after signing of contract agreement. MPRDC may ask for replacement if profile of Project Manager is not found suitable after signing of contract agreement.

6.3 PREPARATION OF DETAILED PROJECT PLAN

1. The IA shall prepare an Integrated Project Plan for the entire project that covers detailed tasks which are intended to be performed, as part of the project. A high-level analysis of processes has already been performed and functional requirements have been identified.

The Functional Requirements as envisaged for this project are described in this document. The IA needs to evaluate these requirements carefully and should consult with the Nodal Officers of MPRDC, MPPWD that includes EinC (Road and Bridges) and EinC (Buildings), to obtain more details on the requirements of the project. It shall be the duty of IA to refine functional requirements as needed during requirements gathering exercise.

2. The IA shall conduct requirements gathering exercise and prepare a Software Requirement Specifications (SRS) document, for which the IA shall have a comprehensive discussion with the MPPWD and MPRDC and other stakeholders to ensure that each of the requirements mentioned in this RFP or identified during study is covered.
3. Activities conducted as part of this task will result in the project deliverable SRS document, which shall detail the requirements of the complete solution up to the last detail. The SRS document shall comply with the latest and most relevant standards.

6.4 DEFINITION & DESIGN

1. After conducting a comprehensive analysis of the requirements for the Project, the IA will prepare elaborated system architecture and design documents for the project. The Architecture document will provide the complete technical detail in development/customization methodology of the proposed systems.
2. The following documents including, but not limited to, will be submitted for a sign-off of application architecture and development methodology:
   - Application Architecture with all relevant design patterns identified
   - All Database structure and detailed description of tables and fields.
   - Naming conventions followed for the tables and fields.
   - Data Flow Diagrams (DFD) & Entity-Relationship (ER) diagrams.
   - Access control mechanisms, data security and audit trails to ensure that databases are not tampered or modified by unauthorized users. The following guidelines need to be observed for security:
     - Build a complete audit trail of all transactions (add, update and delete) using transaction log reports, so that errors in data, intentional or otherwise, can be traced and reversed.
     - The most appropriate level of security commensurate with the value to that function for which it is deployed must be chosen

- Access Controls must be provided to ensure that the databases are not tampered or modified by the system operators.
- Implement data security to allow for changes in technology and business needs.

- Plans for User Acceptance Tests and System Integration Tests including Stress Tests and plans.
- Detailed Project Implementation Plan, Operations & Maintenance Plan, component-wise activity schedule, etc.
- **The Implementation Plan shall be comprehensive including, but not limited to:**
  - Process, methodology, software etc. to be used in the Project (as submitted by the Bidder during Technical Evaluation),
  - Software Licenses details for system and other software,
  - Data modelling document, approach and methodology and plan for master data creation,
  - Detailed description of the technology to be used for each system modules (as submitted by the Bidder during Technical Evaluation),
  - Training and Capacity Building Plan, Material and Methodology,
  - Data Digitization/Migration Strategy, Plan and Activity Schedule,
  - Detailed timelines for implementation as per defined requirements.
- **The Operations and Maintenance Plan shall be comprehensive, including, but not limited to:**
  - Resource deployment plan with qualification, experience and escalation Chart.
  - Operations management plan
  - Repair and Maintenance plan
  - Data Backup Plan
  - Information Security
  - SLA and Performance monitoring Plan,
  - Detailed security policy and recommendation updated from time
  - Exit Management Plan

3. The IA shall be entirely responsible for the architecture of the system implemented to satisfy all features, functions and performance as described in this document including sizing of the required infrastructure on cloud. System architecture description provided in this document is for reference only. The Implementation Agency should ensure all possible and required improvements are made.
4. The application design will be such as to require minimal installation, if at all, at the user's end, besides the Internet Browser and will be able to support all common browsers (like Internet Explorer, Mozilla, Google Chrome etc.). IA shall also design the Frontend and Backend portals for the Project.
5. User's involvement will also be ensured during finalization of user interfaces, the mode of data entry, storage and retrieval, outputs reports, queries and the application design as a whole.

6.5 DEVELOPMENT, INSTALLATION AND PILOT RUN IN 3 PHASES

1. This phase will include:
   1.1. Application Development/customization installation, configuration, integration and Testing in 3 Phases.
   1.2. Supply, installation, configuration and deployment of database and related software.
   1.3. Design, development, integration, testing and implementation of portal(s) and other modules of the project.
2. Entire application development or customization must be documented in detail and the code/script should be properly annotated with comments etc. From the integration perspective, the IA must consider necessary interfacing requirements (both at the application and data level).
3. The IA must supply the application, database and related software, integration tools, along with the source code of customized part of the System and describing the process to be followed for installing and operating the same. Software development methodology should be developed in a way that ensures rapid deployment of the applications and users are continually involved in the development process.
4. Automation and transformation of current manual system requires institutional preparedness. At this stage, MPPWD and MPRDC are not fully prepared owing to lack of visibility of proposed automation. It is always better to implement large automation projects in phases, so that organization can become familiar to new way of working, feel benefits, comprehend automation process, proactively participate in development process, address resistance and come up with full acceptance and commitment towards change. Hence, the IPMS is planned to be implemented in 3 phases.

5. In the first phase, the system will be implemented as Project Monitoring System and address simple but critical needs that involve functionaries across the levels.

6.5.1 Phase 1: As Project Monitoring System

1. In the first phase, IPMS shall be implemented as Project Monitoring System with following functionality:
   - Works Demand, Budgeting and Approval process will be online.
   - SORs will digitized and Estimates will be prepared online.
   - DPRs will be submitted online for Administrative Approvals.
   - All the Project Detail with documents will be maintained online.
   - Roads/Structure and Progress will be visualized on GIS Maps preferably google maps.
   - Work Approval Letters will be generated online.
   - Work Inspection and Quality Testing will be scheduled online with random selection of locations. Sample transportation and testing by maintaining anonymity.
   - Mobile App for inspection and quality reporting with Geo-tagged Images and Videos.
   - E-Measurements using Mobile App
   - Interactive Dashboards at all the levels.
2. More features may be added in consultation with MPPWD and MPRDC during preparation of Detailed Project Report and Implementation Plan. All the above requirements are simple but critical in terms of ensuring:
   - Better Planning through automation of Budgeting, Works Approval and Real Time Project Updates.
   - Better Transparency through Randomization in Sample Collection, Geo-tagging and Identity Masking in Quality Control Practices.
   - Better Monitoring through Dashboards and GIS based reporting.

6.5.2 Phase 2: As Project Management System

1. In the second phase, IPMS shall evolve as Project Management System with following functionality:
   - Automation of Work Management & Execution Processes.

- Online communication and collaboration among stakeholders through Contractor/Consultant Login Interface.
- Automation of Tendering Process and Contract Management.
- Online Work Plan preparation, submission and Approval under each contract for milestones based progress tracking.
- Online approval of Quantity Variation, Supplementary Work and Change of Scope proposals.
- Online Submission and Approval of Concept Plan, Drawings, Floor Plans, etc.
- Online preparation, submission and approval of Annual Maintenance Plans.

2. More features may be added in consultation with MPPWD and MPRDC during preparation of Detailed Project Report and Implementation Plan. All the above requirements are critical in terms ensuring:
   - Better Accountability through process automation at all the levels.
   - Better Transparency through automation of Tender Process and Contract Management.
   - Better Management through automation Work Plans and Annual Maintenance Plans preparation, submission and approvals.
   - Better Accessibility of information and project progress.

6.5.3 Phase 3: As Integrated Project Management System

1. In the third phase, IPMS shall become Integrated Project Management System with following functionality:
   - Automation of Financial Management, Budget Demand and Allotment.
   - Online Accounts and Bookkeeping.
   - Online Billing, Penalty Calculation, Price Adjustment and Payment Management.
   - Implementation of Digital Signature Certificate based Log-in.
   - Audit Para Tracking.
   - Integration of 5D Building Information Modeling (5D BIM), provided by third party for better planning and construction management in Structure Works.

2. More features may be added in consultation with MPPWD and MPRDC during preparation of Detailed Project Report and Implementation Plan. All the above requirements are critical in terms of ensuring:
   - Better Accountability through DSC based approvals.
   - Better Transparency owing to Financial Management and Accounting.
   - Better Construction Management through Implementation of 5D BIM for Structure Work.

6.6 HOSTING OF APPLICATION

1. IPMS application shall be hosted on the Cloud infrastructure provided by Department of Science & Technology Govt. of MP through MP State Electronics Development Corporation (MPSEDC). Cloud infrastructure and necessary platforms shall be provided to IA at free of cost for IPMS Application hosting. The IA shall prepare detailed plan for IPMS Application Hosting and get it approved by MPSEDC through MPRDC.
2. MP Science & Technology Department has published Cloud Adoption Framework for the department and agencies under Government of MP. IA is required to study the framework document available on the website of MPSEDC (www.mpsedc.mp.gov.in) on the link as:

   (https://www.mpsedc.mp.gov.in/Uploaded%20Document/Policies%20and%20Rules/Cloud%20Adoption%20Framework.pdf)
3. As per the guidelines issued for MP Science & Technology Department, the IA as System Integrator, required to:
   - Ensure readiness of application and data for cloud migration and vice-versa.
   - Provide accurate capacity sizing and planning of applications as per load cycle
   - Provide support to MSP/Nodal Agency for cloud migration.
   - Design & develop cloud native & compatible applications for user departments.
4. MPRDC shall provide necessary authorization, support and coordination for hassle-free hosting of IPMS application on the Cloud Infrastructure provided by MPSEDC.
5. All the licenses for System OS, Database and allied services, required for cloud hosting, shall be provided by CSP. Any additional financial obligation arises on MPRDC or MPSEDC for licenses that are not available with CSP under rate contracts, shall be borne by the IA.

6.7 DATA DIGITIZATION AND MIGRATION.

1. IA shall digitize and migrate the existing data into the Application. Following activities will be performed for data migration and digitization from the existing legacy systems:

- Mapping of the data
- Identifying the data gaps
- Providing templates for data collection
- Extraction and loading of the data
- Quality check of the data
- Listing of errors during the data migration
- Correction of data
- Final porting of the data into the application system
- Scan paper documents and records

6.8 PARTIAL GO-LIVE IN PHASES

1. IMPS Application will be declared as "Partial Go-Live" after the end of each phase. IA shall design, develop, test and implement necessary functionalities defined for each phase in Detailed Project Report. MPRDC and MPPWD Units will test IPMS Application under each phase and provide acceptance. After receiving acceptance from respective unit level implementation Committees, IA shall conduct security audit by MPSEDC or any CERT-IN empaneled agency, as recommended by MPRDC. After obtaining security audit certificate for each phase, the application shall be declared as Partial Go-Live for that phase.
2. Partial Go-Live does not mean that the part application developed in respective phases is taken into maintenance phase. Partial Go-Live is just a declaration for use of application in production environment with live datasets. Purpose of partial Go-Live is to achieve better engagement and participation of stakeholders in development process.

6.9 PROJECT GO-LIVE

After statewide roll-out of IPMS application, IA shall formally request MPRDC to issue Go-live certificate. The Project Implementation Committee shall evaluate all the deliverables in terms of RFP provisional and written instructions given to IA time to time. The committee with consultation of PMU, shall perform necessary due diligence and make necessary recommendation to the competent authority. On the basis of the recommendations of Project Implementation Committee, the competent authority shall issue Go-live Certificate. From date of the issue of Go-live certificate, the project shall enter into Operation & Maintenance Phase.

6.10 CHANGE MANAGEMENT AND CAPACITY BUILDING

3. The IA will impart training to the MPPWD and MPRDC staff and other key stakeholders on the usage and maintenance of the project application. MPRDC has already identified training needs and has come out with a list of modules and user groups. IA shall perform following activities as part of Capacity Building and Change Management initiatives:
   3.1. Prepare detailed training plan and training manuals to impart trainings to MPPWD and MPRDC Staff and other stakeholders. Training plan will include appropriate training model, training arrangements and detailed methodology on how the training would be conducted.
   3.2. Provide such additional training as they deem necessary in order to ensure that the training imparted is comprehensive and complete.
   3.3. Computer Based Training Modules will also be prepared by IA to enable the users for self-learning.
   3.4. Training material / kits should be arranged by the IA.
   3.5. IA should ensure that the knowledge is transferred to the MPPWD and MPRDC officials effectively. In this regard, an after training assessment will be conducted by IA to ascertain whether desired level of skillset and knowledge is attained by users or not.

6.11 OPERATION AND MAINTENANCE

This will include operation and maintenance of Applications, IT infrastructure, Servers, Network and Equipment for a period of 5 years from the date of Go-Live. The development team will transfer all necessary know-how to the project support team to effective handle issues/bugs if any, and handhold users with the functioning of application. The IA will ensure that all necessary measures are taken for the smooth implementation of the system. MPPWD and MPRDC will also ensure there is a dedicated IT Teams to gradually take over the work from the IA before Operation and Maintenance term is over.

6.12 DOCUMENTATION OF THE PROJECT

1. The IA should ensure that complete documentation of the project is prepared and provided to MPRDC. Documentation should adhere to standard methodologies in software development as per ISO standard and/or CMM models. The following documents, but not limited to, shall be submitted to MPRDC in Hard and Soft copies.
   1.1. All architecture documents, design documents, deployment manuals etc.
   1.2. Test Plan containing information on the software test environment to be used for independent testing, the test cases to be performed, and the overall testing schedule.

This includes methodology, schedule, resources, tools, procedures, environment definition, test cases, and software test results.

1.3. Systems Manual detailing the data structure, table, forms and report structures.

1.4. Operations Manual providing instructions for installing the application, troubleshooting, interpreting message logs, and FAQs (Frequently Asked Questions).

1.5. User Manual (both online and paper copies) providing detailed instructions on how to use the application software.

1.6. Documentation of the project activities, deployments, data digitization, trainings, project monitoring indicators, SLA tracking system, etc.

1.7. A data dictionary listing out all the data elements.

7 Functioning of MPRDC and MPPWD

7.1 MP ROAD DEVELOPMENT CORPORATION

MP Road Development Corporation (MPRDC) is a registered company and an autonomous agency under the Public Works Department, Govt of MP, which is governed by Board of Directors. MPRDC is headed by Managing Director who is an IAS officer. For engineering works, MPRDC has different sections like Procurement, Maintenance, PPP, Externally Aided Projects, etc headed by Chief Engineers and supported by General Managers and Dy General Managers and Managers. Administrative, HR and IT works are led by Chief General Manager with respective section heads. Field work is divided in geographic areas called Divisions and headed by Divisional Managers.

7.1.1 Procurement

Procurement Section is headed by Chief Engineer Procurement and responsible for procurement of Engineering Services through e-Tendering System. There are well defined processes for different types of procurement that are described below in brief:

S.No	Type of Procurements	Steps
1	**General Procurement**	• Proposal for inviting tenders from concerned section (Concerned section will upload all the required documents) • NIT and tender publication (combined projects) • Prebid queries if required and reply • Technical bid opening (No of bidders and date of opening) • Technical evaluation (result to be uploaded) • Financial opening

		• Financial evaluation and approval (result to be uploaded) • Issue of LOA • Agreement/ work order signing • Transfer of work and distribution of agreement to concerned section
2	**Consultancy Services** Process for Selection of feasibility cum DPR consultants, Independent Engineer, Authority Engineers, SQC (Supervision Quality Control) and Other consultancy	• The Proposal for inviting tenders from concerned section is received by Procurement section • NIT is published and tender is floated on www.mptendrs.gov.in • Prebid queries if required and reply • Technical bid opening (No of bidders and date of opening) • Technical evaluation (result to be uploaded) • Financial opening • Financial evaluation and approval (result to be uploaded) • Issue of LOA • Agreement/ work worder signing • Transfer of work and distribution of agreement to concerned section
3	**Payment Mode Contract** Regular Contract (Percentage)	• Selection of road for preparation of Detailed Project Report • Detailed Project Report to be prepared by the division or consultancy can be hired for preparing the report. • Proposal for projects received from divisions or selection by the HQ • Proposal sent to government to include project roads in the state government budget • After project published in the budget, process will start • Proposals sent to SFC and EFC for approval (Standing Finance Committee) • Administrative Approval received from the Government • Floating of Tender (RFQ & RFP) • Bidder is selected as per the criteria • MPRDC signs the agreement with the Bidder • Start of the construction • Contract management • Change of scope can be proposed with the recommendation of IE, Decision making power is with MD • Payment will be done as per the schedule given in agreement
4	**EPC Mode** NH/ SH/ MDR	• Selection of road for preparation of feasibility report • Feasibility report to be prepared by the division or consultancy can be hired for preparing the report. • Proposal for projects received from divisions or selection by the HQ • Proposal sent to government to include project roads in the state government budget

		• After project published in the budget, process will start • Proposals sent to SFC and EFC for approval (Standing Finance Committee) • Administrative Approval received from the Government • Floating of Tender (RFQ & RFP) • Bidder is selected as per the criteria • MPRDC signs the agreement with the Bidder • Contractor will start the DPR process • After approval of DPR, construction will start • Change of scope can be proposed with the recommendation of IE, Decision making power is with MD • Payment will be done as per the schedule given in agreement
5	**PPP Mode**	• Selection of road for preparation of feasibility report under BOT scheme (from head office) • RFP for appointment of consultant for preparation of Feasibility study report • Appointment of consultant • Consultant to prepare Feasibility report with financial viability under BOT scheme, RFP, RFQ etc.(in this report assessment will be done and propose a scheme under which the project will be viable) BOT, BOT(T+A), BOT (A) • Report sent to DIF (Directorate of Institutional Finance) for approval • Report presented to SLEC (State level Empowered Committee) under the Chairmanship of the Chief Secretary for approval • If required, request for Grant (Max 40%) to be sent to central government (50% of the total grant by Central Govt and 50% by state government. • Sent for Cabinet Approval • Sent for Administrative approval • Floating of Tender (RFQ & RFP) • Bidder is selected as per the criteria • SPV formed by the concessionaire • Concessionaire approach bank for loan and create an Escrow account for the fund transaction as pe the Concession agreement • MPRDC signs the agreement with the SPV • MPRDC will notify the Agreement date which will be the start of the concession period. • Start of the construction • Change of scope can be proposed with the recommendation of IE, Decision making power is with MD • For negative of positive change of scope, concession period can be extended or reduced as per the requirement. • Pre COD approval given. • Completion certificate. (**in case of pure Annuity)**
a	BOT (Toll) BOT (Toll + Annuity) BOT (Annuity) HAM	

		• Damages/Bonus can be given
b	OMT	• Selection of road for OMT scheme • No feasibility is required as roads are already constructed • RFQ float for tender • RFP float for bidder (Grant or Premium basis) • OMT period will be based on IRR calculation, Projected traffic (only commercial traffic) 5 years, 7 years, 10 years • Bidder is selected as per the criteria • SPV formed by the concessionaire • Concessionaire approach bank for loan and create an Escrow account for the fund transaction as pe the Concession agreement • MPRDC signs the agreement with the SPV • MPRDC will notify the COD date which will be the start of the concession period.
6	**User Fee Mode**	• Selection of road for User Fee scheme • No feasibility is required as roads are already constructed • RFQ float for tender • RFP float for bider • Bidder is selected as per the criteria (highest paid amount) • MPRDC signs the agreement with the bidder • MPRDC will notify the COD date which will be the start of the concession period. • MPRDC Amount will be shared where the bidder will deposit amount on biannually or monthly basis
7	**Maintenance**	**Routine Maintenance: Patch Repair/ Patching/ Jungle Clearance/ Clearing etc** • Zonal Tender: Proposal is to be submitted by the Divisional Manager, • Concerned General Manager/ to examine the proposal and recommended to this office for approval. • Thereafter to be issued the Administrative Approval. • Such work to be carried out through Zonal Agency by issuing piece work order as per the requirement • DLP – One year **Periodical Maintenance: B.T. Renewal every 5th Year** • Survey to be done by MPRDC, Identification of length in Kms. • Proposal is to be prepared by the Divisional Manager, • Concerned General Manager/ to examine the proposal and recommended to this office for approval. Thereafter to be issued the Administrative Approval • Such work to be carried out through Zonal Agency • 20% of total length every year, Separate tender in each year • DLP – 3 year

		Special Repair: Damages due to flood, earthquake or any other unexpected incidents • Zonal Tender: Proposal is to be submitted by the Divisional Manager, Concerned General Manager/ to examine the proposal and recommended to this office for approval. • Thereafter to be issued the Administrative Approval. • Such work to be carried out through Zonal Agency by issuing piece work order as per the requirement • DLP – 1 year

7.1.2 Execution of PPP Projects

1. At headquarter level, execution means contract management. It plays an important role in managing the entire gamut of activities in a highway project execution, seeking cooperation from the concessionaire & other stakeholders and smooth transition with exit formalities. Managing Highway PPP Concessions is a complex task due to long term nature engagement and associated risks involved in execution, operation and maintenance of project highway throughout the project lifecycle. There are number of compliances and interdependencies at various stages of PPP Implementation, which needs to be tracked and escalated to respective authorities and agencies in time. Ignorance on account of government may provide undue benefit to the concessionaire and cause delay in execution.
2. Activities undertaken by MPRDC HQ for execution of Concession Agreement (PPP Projects)

Activity	Action	Timelines
Concession Agreement signing	Step 1: The MPRDC receive LOA acceptance letter from the Successful Bidder	Within 7-15 days of issuance of LOA
	Step 2: The MPRDC may send reminder letter to the Successful Bidder in case the Successful Bidder does not submit the LOA acceptance letter to the MPRDC.	Within 15 days of issuance of LOA
	Step 3: The MPRDC to accept the LOA acceptance letter from the Successful Bidder after the reminder	Within 7 days of receipt of reminder letter from MPRDC
	Step 4: The MPRDC may forfeit the Bid Security in case the Successful Bidder does not submit the LOA acceptance to the MPRDC within 7 days of reminder letter	Within 7 days of issuance of reminder letter
	Step 5: The MPRDC to review & approve the submitted the draft documents for incorporation of an SPV under	Within 15 days of acceptance of LOA

Activity	Action	Timelines
	the Companies Act 1956 by the Successful Bidder, after submission of the LOA acceptance letter	
	Step 6: MPRDC to send all Legal document (as submitted by Successful	Within 7 days of receipt of such

3. The tables below summarize timelines for key milestones in the project as per the Model Concession Agreement (MCA)

Development Period (from Issuance of Letter of Award till Appointment date)

Activities	Key Dates
Signing of Concession Agreement	Within 45 days of issuance of LOA
Submission of Performance Security	Within 180 days of CA Signing Date
Financial Closure	Within 180 days of CA Signing Date or before Appointed Date
Condition Precedent (CP)	Within 180 days of CA Signing Date
Appointed Date	Within 180 days of CA Signing Date
Handing over of entire ROW	Within 90 days of Appointed Date

Construction Stage

Activities	Key Dates
Release of Performance Security	After 1 year from Appointed Date
Construction Completion Date	Within 912 days from Appointed Date or any other day specified in Concession Agreement
Commercial Operation Date (COD)	After Completion of Construction

Operations & Maintenance Stage

Activities	Key Dates
Traffic sampling for a continuous period of 7 days	• One year prior to the Target Date • On the Target Date • On the First anniversary of the Target Date
Target Date	After 10 years from Appointed Date
Construction of Additional Toll way, if any	On or after 12th anniversary of the Appointed Date

Exit Stage

Activities	Key Dates
Termination Notice	At least 180 days before the Termination Date

Termination Date	After Expiry of the Concession Period or any date mutually agreed by both parties
Termination Payment	Within 15 days from Termination Date

7.1.2.1 Key Activities in a Highway Concession Lifecycle Stages

During any Highway PPP Concession, as mentioned before, Post- Award Activities are spread over from the Development Period up till the Exit stage. There are few activities which are spread across the entire project lifecycle too. Also, for each stage each official within the MPRDC is assigned a certain set of tasks and they are accountable for them.

Development Stage
This stage leads up to contract execution, starting from the Date of issuance of Letter of Award (LOA) up till the Appointed Date of a highway project. At this stage, for all the activities, both the MPRDC and the Concessionaire need to adhere to timelines and work in tandem so that all conditions before construction are met on time. It has often been observed that delays in acquisition of land and meeting other condition precedents form the root cause of all the further delays in timely completion of projects causing user inconvenience. MPRDC has a mechanism to proactively manage these issues before the signing of Concession Agreement and clauses for any delay are added as a part of the Concession Agreement, such issues can be avoided to a great extent.
Construction Stage
The construction stage begins from the time construction starts on the date of commencement of construction through the commissioning process to the completion of construction as specified in the terms and conditions of concession agreement. At this stage, for all the activities, MPRDC oversees the entire construction process with detail so that responsibility shirking or adherence to quality construction standards by the Concessionaire is maintained. The Independent Engineer monitors the construction activities on regular basis and submit progress report to the field officers/HQ on time so that necessary actions can be taken to prevent major delays. Completion certificate issued only after satisfactory work is observed during inspection.
Operations & Maintenance Stage
This stage extends for the longest portion of the contract life cycle. It covers the provision and use of the contracted services during the remaining life of the concession. The operations & maintenance stage is extremely critical for any project as it forms the longest period of any concession period and is the stage when the users of the highway actually experience the convenience or the inconvenience due the newly constructed highway asset. The MPRDC exercises highly précised supervision and control over these activities and take required actions against any defaults by the Concessionaire. In case the actual traffic is observed to be higher than the existing capacity, it is important that timely

construction of new toll ways and up gradation of existing ones are in line with new technology is done so that users are not inconvenienced due to it. Also, the toll charges are revised in line with the existing market conditions.
Exit Stage
This stage leads up to and after contract expiry or termination.
Other Contract Management Activities for Handling Rare Events
There are few other important activities that include all those tasks to be taken up by the MPRDC officials and the Concessionaire's team throughout the project execution lifecycle such as Change in Law , Force Majeure, Compensation for Breach of Agreement, Assignment & Charge Creation Requests, Indemnity Claims, Suspension of Concessionaire's Rights, Termination Change of Scope (Proposed by MPRDC), Change of Scope (Proposed by Concessionaire), Payment for Change of Scope Etc.

7.1.2.2 At Development Stage

For contract management, Development Period commences from the date of issuance of Letter of Award (LOA) and continues till the declaration of Appointed Date (generally, the date from which the concession period starts). During the Development Period various key activities are undertaken within the MPRDC for which different level of officials are made responsible as per the Project Contract Management Plan.

AT MPRDC HQ Level (CE, Project Section)	
Initiate Signing of the Concession Agreement	• Issue a reminder letter to Successful Bidder, in case the Successful Bidder does not submit the LOA acceptance Letter within the stipulated timeline as specified in the Bidding Documents. • Initiate the forces for forfeiture of Bid Security submitted by the Successful Bidder in case of default on acceptance of LOA by Successful Bidder related to signing of the Concession Agreement. • Seek the submission of draft SPV formation documents from the Successful Bidder. • To seek comments on the draft SPV formation documents (as submitted by Successful Bidder) from legal/ financial Consultant and communicate the same to the Successful Bidder. • Receive the final SPV formation documents along with certificate of incorporation and initiate the process for execution of the Concession Agreement. • Report to the Chief Engineer (HQ) & MD MPRDC within one day of default, if any

Receipt and verification of Performance Security	• Verify the Bank Guarantee from issuing bank branch and its supervisory branch. • After verification of Bank Guarantee, issue an acknowledgement to the Concessionaire • In case of non-submission of Bank Guarantee within a stipulated timeline as mentioned in the Concession Agreement, proceed for encashment of Bid Security • Report to Chief Engineer (HQ) & MD MPRDC within one day of default, if any
Execution of the agreement	• In case the draft Agreements submitted by Concessionaire have not been reviewed by other department or legal / financial consultant, seek the opinion from legal/financial consultant prior to execution of any Agreement. • To seek comments on Financing Agreements (as submitted by the Concessionaire) from legal/ financial Consultant and communicate the same to the Concessionaire. • After verification of the revised documents, issue an approval letter for the changes requested by Concessionaire. • Report to the Chief Engineer (HQ) & MD MPRDC within one day of default, if any
Covenant	• To evaluate the project with respect to the substitution • Secure necessary approvals • Implement the right of substitution • Report to the Chief Engineer (HQ) & MD MPRDC within one day of default, if any
AT MPRDC Division Level (DM, Project)	
Handing over ROW	• To make sure the availability of at least 80% Right of Way (ROW) before the Appointed Date • Coordination with Competent MPRDC of Land Acquisition (CALA), Revenue Department (State) etc. • Report to the Divisional Manager (Field) and Chief Engineer (HQ) within 5 days of default, if any
Approval of General Arrangement Drawings	• To procure the approval of the Railway authorities in the form of a general arrangement drawing to construct road over bridges / under bridges at level crossings on the Project Highway • Request to the Railway MPRDC for GAD approval • To send a notice to the Concessionaire to extend the GAD approval by 6 months, if required • Report to the Divisional Manager and Chief Engineer (HQ) within 5 days of default, if any
Environmental Clearance	• To procure all Applicable Permits relating to environmental protection and conservation of the Site • To send a notice to the Concessionaire to extend the Applicable Permits by 6 months, if required • Request to the competent MPRDC for environmental clearance approval • Report to the Divisional Manager and Chief Engineer (HQ) within 5 days of default, if any

Utility Shifting	• To make the appropriate arrangement of Utility shifting • To ask for the financial quotation for utility shifting from interested parties through open tender • To seek necessary financial approval based on the sanctioned value • Report to the Divisional Manager and Chief Engineer (HQ)
Utilities, Associated Roads, and Trees	• To make the appropriate arrangement, in case of any written request from the Concessionaire • To Process the invoices for reimbursement of cost, which is required to be borne by the MPRDC, as per the terms of the Concession Agreement • To assist the Concessionaire in obtaining the Applicable Permits • To seek necessary financial approval based on the sanctioned value • Report to the Divisional Manager and Chief Engineer (HQ)within one day of default, if any
Obligations related to Project Agreements	• To issue an acknowledgement to the Concessionaire • To review the documents submitted by the Concessionaire and suggest the changes if any • Seek the response of above and acknowledge the revised communication • Report to the Divisional Manager and Chief Engineer (HQ) within one day default, if any
AT MPRDC HQ Level (GM Finance Section)	
Damage for Delay by MPRDC	• To review the request received from the Concessionaire for Damage for delay by the MPRDC • To negotiate with the Concessionaire for the Damage payment • To Initiate the Damage claim process for Delays • Report and escalate to the GM Finance and Technical Advisor within one day of default, if any
Fulfilment of Concessionaire's Condition Precedents	• To seek comments on the draft Escrow & Substitution Agreement (as submitted by Concessionaire) from legal/ financial Consultant and communicate the same to the Concessionaire. • To issue a letter to the Concessionaire regarding approval / acceptance of the Escrow & Substitution Agreement • To review the supporting documents of the Applicable permits and representations & warranties as submitted by Concessionaire Issue an acknowledgement letter the Concessionaire after receiving any documents with respect to the Condition Precedent. • Report to the GM Finance and Technical Advisor within one day of default, if any
Financial Closure	• To seek comments on the Financial Closure documents (as submitted by Concessionaire) from legal/ financial Consultant and communicate the same to the Concessionaire. • To issue a letter to the Concessionaire regarding approval / acceptance of the Financing Agreement • In case of Delay in Financial Close, Initiate the Damage claim for Delays • In case failure to achieve Financial Close, initiate the termination process as per the Concession Agreement.

	• To encash the Bid Security and appropriate the proceeds thereof as Damages • Report to the GM Finance and Technical Advisor within one day of default, if any •
Condition Precedent & Declaration of Appointed Date	• To inform/ notify in writing to Concessionaire at least once in a month about the status / progress of the Condition Precedent for which MPRDC is responsible • To issue acknowledgement to Concessionaire after receiving the status of Condition Precedent from the Concessionaire To seek comments on the Condition Precedent documents (as submitted by Concessionaire) from legal/ financial Consultant and communicate the same to the Concessionaire. • To issue a letter to the Concessionaire regarding approval / acceptance of the Financing Agreement • If both the parties are fulfilling all the Condition Precedents, declare the Appointed Date • In case of delay, initiate the Damage claim for Delays and appropriate of Performance Security • In case Concessionaire fails to cure its default within the cure period, initiate the termination process as further action as per the Concession Agreement. • Report to the GM Finance and Technical Advisor within one day of default, if any

7.1.2.3 At Construction stage

For contract management, Construction Period commences from the Appointed Date and continues till the Completion of the Construction (generally the date from which the Commercial Operation Date starts). During the Construction Period various key activities are undertaken within the MPRDC for which different level of officials are made responsible as per the Project Contract Management Plan.

AT MPRDC HQ Level (CE, Project Section)	
Release of Performance Security	• Verify the documentary evidence submitted by Concessionaire with respect to the capital expenditure in the Project • If the Concessionaire is fulfilling the required criteria as per the Concession Agreement, MPRDC may release the Performance Security. • Report to the Chief Engineer and MD MPRDC within one day of default, if any
Release of Grant	• Review the request received from the Concessionaire for disbursement of grant • Initiate the grant disbursement process. • Circulate/ forward correspondence to the related parties • Report to the Divisional Manager (field) and Chief Engineer within one day of default, if any

AT MPRDC Division Level (DM, Project)	
Handing over ROW	• Review the request received from the Concessionaire with respect to remaining ROW, if any • Coordinate with the line department to make sure the availability of ROW. • Make sure 100% of ROW is provided within 90 days of Appointed Date • In case the MPRDC does not hand over the 100% of ROW within 90 days of Appointed Date, MPRDC field officer would calculate the damages as per the provisions of the Concession Agreement. • If Concessionaire requests for payment of damages, MPRDC field officer would process it. • Report to the Divisional Manager & Chief Engineer within one day of default, if any
Construction of Project highway	• Review the drawings and reports submitted by the Concessionaire and Independent Engineer. • Provide the comments on such reports to the Concessionaire / Independent Engineer if any • Report to the Divisional Manager & Chief Engineer level within one day of default, if any
Milestone	• Review the project progress report submitted by Independent Engineer. • In case the Concessionaire does not meet the milestone within specified period. Field Officer to issue a notice to the Concessionaire is to pay damages for delay. • Calculate damages as per the provisions of the Concession Agreement. • In case the Concessionaire does not complete the Project Highway within 270 days from schedule completion date, the field officer may initiate the Termination process. • Report to the Divisional Manager & Chief Engineer within one day of default, if any
Monitoring of Construction	• Process the reimbursement of the half of the cost incurred in the Test as certified by the Independent Engineer. • In case Independent Engineer recommend to the MPRDC for Suspension of any construction work, field officer may issue a notice to the Concessionaire is to suspend the construction work. • After remedial measures from Concessionaire, and the independent Engineer recommendation the field officer may process to revoke such suspension or instruct the Concessionaire is to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the MPRDC. • Report to the Divisional Manager & Chief Engineer level within one day of default, if any
Completion Certificate	• During the Test for issuing the Completion certificate, the field officer may designate MPRDC's representative to witness the Test. • In case the Concessionaire does not complete the Punch list, field officer may process for the recovery of damages from the Performance Security as specified in the Concession Agreement.

	• In case the Concessionaire does not complete the Punch list items within the specified period from the start of the payment of damages, MPRDC Field Officer may process the Termination of the Agreement. • Review the report submitted by Independent Engineer (in case Project Highway or any part thereof does not conform to the provisions of the Agreement). • Process the own inspection based on the report submitted by Independent Engineer. • In case of any deficiency in the Project Highway, field officer may notify to the Concessionaire • Report to the Divisional Manager (field) & Chief Engineer level within one day of default, if any

7.1.2.4 At Operations & Maintenance Period

For contract management, Operation & Maintenance Period commences from the Commercial Operation Date (COD) and continues till the Completion of the Concession Period. During the Operation & Maintenance Period various key activities are undertaken within the MPRDC for which different level of officials are made responsible as per the Project Contract Management Plan

AT MPRDC HQ Level (CE, Project Section)	
User Fee	• Initiate the process for issuance of fee notification • Report to the Chief Engineer & MD MPRDC level within one day of default, if any
Revenue Shortfall Loan	• Review the request received from the Concessionaire regarding Revenue Shortfall Loan. • Process for the release of the loan, if required • Report to the Chief Engineer & MD MPRDC within one day of default, if any
Effect of Variation in Traffic Growth Rate	• Arrange for traffic survey for continuous period of 7 days. • Start the process for engagement of traffic survey consultant through open bidding process. • Based on the traffic survey report, decrease, or increase the Concession period, as required • After receiving the notice from the Concessionaire as per the provisions of the Concession Agreement, the HQ officer may waive the reduction in Concession Period and recover the Concession Fee. • If the average daily traffic of PCUs exceeds the designed capacity of the Project Highway in any accounting year, the HQ officer may begin the process for the preparation of a DPR to augment the capacity of the Project Highway. • HQ officer may engage a DPR consultant through competitive bidding process for preparation of DPR • Report to the Chief Engineer & MD MPRDC level within one day of default, if any

Construction of Additional toll way	• Send a notice to the Concessionaire prior to opening of additional toll way as per the provisions of the Concession Agreement provisions of the Concession Agreement. • Process for the compensation to the Concessionaire if any • Ensure that the applicable toll rate on additional toll way is as per the provisions of the Concession Agreement provisions of the Concession Agreement. • Report to the Chief Engineer & MD MPRDC level within one day of default, if any
Insurance	• Make sure that the Concessionaire is maintaining insurance as may be necessary • In case the Concessionaire does not maintain necessary insurance, the HQ officer may process to pay the premia and recover the costs thereof from the Concessionaire. • Report to the Chief Engineer & MD MPRDC within one day of default, if any
AT MPRDC Division Level (DM, Project)	
Replacement of Operations & Maintenance Contractor	• Review the documents submitted by Concessionaire • Convey its decision without any delay • Report to the Divisional Manager and Chief Engineer within one day of default, if any
Construction of Service Lanes	• Initiate the process for the construction of the Service Road • Send the requirements and related information to Headquarter level • Report to the Divisional Manager and Chief Engineer
Operations & Maintenance Activities	• Review the Inspection report and estimated damages submitted by Independent Engineer. • In case the Concessionaire does not commence the remedial measures within the specified period, the field officer to initiate the process to undertake the remedial measures by the MPRDC. • The cost of the remedial measures along with damages as specified in the Concession Agreement would be recovered from the Escrow Account. • Ensure that no barriers or diversions are erected or placed • Report to the Divisional Manager and Chief Engineer within one day of default, if any
Safety Requirements	• Forward one copy of the Audit report to the Concessionaire and one copy to the Independent Engineer • Process the cost & expenses on works and services not covered, which are to be borne from out of dedicated Safety Fund owned and operated by the MPRDC • Report to the Divisional Manager and Chief Engineer within one day of default, if any

Monitoring of Operations & Maintenance Activities	• Process the reimbursement of cost incurred by Concessionaire for Test as per the provisions of the Concession Agreement and to the extent certified by Independent Engineer. • Process to recover the payments for damages from the Concessionaire • Report to the Divisional Manager and Chief Engineer within one day of default, if any
Traffic Regulations	• Process the procurement of police assistant from the competing department • Report to the Divisional Manager and Chief Engineer
Traffic Census & Estimation	• Initiate the process of detailed traffic survey or ask the Concessionaire to do the same • Inspect relevant records submitted by the Concessionaire • Report to the Divisional Manager and Chief Engineer within one day of default, if any

7.1.2.5 AT Exit Stage

For contract management, Exit Stage commences from the Termination Date and continues till the final settlement. During the Exit stage various key activities are undertaken within the MPRDC for which different level of officials are made responsible as per the Project Contract Management Plan. Also, any highway concession may end either at the natural end of the contract period or on mid-way on account of certain events. On such termination, the concessionaire is responsible for completing contract responsibilities and handing over the Highway Assets back to the MPRDC. The MPRDC, on the other hand, is responsible for ensuring service continuity for Users. This section outlines plans to manage asset handover and service continuity.

AT MPRDC HQ Level (CE, Project Section)	
Divestment of Rights & Interest	• Make sure that both parties are meeting their respective obligations. • Make sure the smooth transfer of the Project in accordance with the provisions of this Agreement to protect safety of and avoid undue delay or inconvenience to the Users. • After fulfillment of all Divestment Requirements, the HQ Officer may issue Vesting Certificate. • Report to the Chief Engineer and MD MPRDC within one day of default, if any
AT MPRDC Division Level (DM, Project)	
Defects Liability after Termination	• Make sure that the Project Highway is rectified and repaired for a specified period after Termination • In case the Concessionaire fails to rectify, the Field Officer may make the arrangement for rectify the same.

	• Field Officer may process for recovery of repair cost from the Escrow Account or Bank Guarantee as applicable as per the Concession Agreement. • Report to the Chief Engineer and MD MPRDC within one day of default, if any

7.1.2.6 Rare Events

There are many risks a project face pertaining to change in policy, force majeure events such as natural calamities which are unexpected and untimely or premature terminations of project due to unforeseen circumstances. Such events occur rarely, but when they do, they leave a huge impact on the project leaving the progress stalled for a long period and causing huge inconvenience to all stakeholders.

AT MPRDC HQ Level (CE, Project Section)	
Change in Law	• To issue a notice to the Concessionaire regarding Change in Law, if any • To review the request submitted by the Concessionaire regarding Change in Law • To arrange a meeting with Concessionaire for mutually agreed arrangement. • To send all related documents to the Financial/ Legal Consultant for review & comments and also to estimate the variation in NPV as per the provision of Concession Agreement. • To process the payment to the Concessionaire against Change in Law as per the provision of the Concession Agreement, if any. • To send a notice to the Concessionaire for recovery of payment against Change in Law as per the provision of the Concession Agreement, if any • Report to the Chief Engineer and Technical Advisor within one day of default, if any
Force Majeure	• To issue a notice to the Concessionaire to report occurrence of Force Majeure if any • To assess the impact on Concession period and allocation of cost upon occurrence of Force Majeure event • To process for the required adjustment in the Concession Period or any other timeline, as required. • If Force Majeure is for more than 365 days, HQ Officer may issue a notice to the Concessionaire for termination. • In case Concessionaire issues a notice for termination, HQ Officer may make a representation on behalf of the MPRDC to the Concessionaire in this regard. • Report to the Chief Engineer and Technical Advisor within one day of default, if any

Compensation for Breach of Agreement	• To review the documents submitted by Concessionaire with respect to the breach of Agreement. • Process for the compensation against the breach of the Agreement • To raise compensation demand for material default, supported by necessary particulars. • Report to the Chief Engineer and Technical Advisor within one day of default, if any
Assignment & Charge Creation Requests	• To review the request submitted by Concessionaire and may decline the consent without assigning any reason, if required • Process to assign and/ or transfer any of its rights and benefits and/or obligations under this Agreement • Report to the Chief Engineer and Technical Advisor within one day of default, if any
Indemnity Claims	• In case receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity, HQ Officer would notify to the Concessionaire. • To process the payment against claim or demand after approval from the Concessionaire • In case the MPRDC, any notice from the Concessionaire regarding claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity, the HQ Officer would review such claims or demands. • Report to the Chief Engineer and Technical Advisor within one day of default, if any
Suspension of Concessionaire's Rights	• Issue a notice to the Concessionaire for Suspension of Rights • To suspend all rights of the Concessionaire and process to exercise such rights by • MPRDC or authorise any other person to exercise or perform the same on behalf of the • MPRDC as per the provision of the Concession Agreement during suspension. • To process to revoke the suspension as per the provision of the Concession Agreement. • Upon occurrence of a Concessionaire Default, HQ Officer to inform lender about intention to issue termination notice • In case of substitution, to suspend all the rights of the Concessionaire and undertake the operation and maintenance of the Project Highway as per the provision of the Concession Agreement. • In case substitution does not occurs within the specified period, HQ Officer may process for termination of the Concession Agreement • Report to the Chief Engineer and Technical Advisor within one day of default, if any
Termination	• To inform the Concessionaire about MPRDC's intention to issue Termination Notice and request the Concessionaire to make a representation within a specified time • To inform the Lender's representative about MPRDC's intention to issue Termination Notice and request the Senior Lenders to make a representation within a specified time.

	• After receiving the Representation from Concessionaire and the Lender's representative, to take the adequate action as per the provision of the Concession Agreement. • To issue a termination notice, upon occurrence of Concessionaire default. • In case of the MPRDC default and after receiving an intimation of termination notice from Concessionaire, HQ Officer would make representation to the Concessionaire. • To process for the termination payment, in case of termination. • After termination of the Project, HQ Officer would start the process to take possession and control of the Project Highway and all materials and plants about the site as per the provision of the Concession Agreement. • Report to the Chief Engineer and Technical Advisor within one day of default, if any
AT MPRDC Division Level (DM, Project)	
Change of Scope (Proposed by MPRDC)	• To Issue a notice to the Concessionaire to consider Change of Scope if MPRDC felt necessary. • To issue a notice to the Concessionaire specifying in reasonable detail the works and services contemplated thereunder • To convey preferred option to the Concessionaire and make efforts to agree upon the time and costs for implementation thereof with assistance of the Independent Engineer. • To execute the Change of Scope Agreement with the Concessionaire • To issue an order requiring the Concessionaire to proceed with the performance thereof. • Report to the Chief Engineer and Divisional Manager within one day of default, if any
Change of Scope (Proposed by Concessionaire)	• May accept the Change of Scope suggested by the Concessionaire or suggest the modification or inform the Concessionaire in writing of its reasons for not accepting Change of Scope. • In case the MPRDC accepts the Change of Scope, Field Officer would issue a notice to the Concessionaire specifying in reasonable detail the works and services contemplated thereunder. • To convey preferred option to the Concessionaire and make efforts to agree upon the time and costs for implementation thereof with assistance of the Independent Engineer. • To execute the Change of Scope Agreement with the Concessionaire • To issue an order requiring the Concessionaire to proceed with the performance thereof. • Report to the Chief Engineer and Divisional Manager within one day of default, if any
Payment for Change of Scope	• To start the process to make the advance payment to the Concessionaire as per the provision of the Concession Agreement. • To process for the disbursement of bill as per the provision of the Concession Agreement

	• Report to the Chief Engineer and Divisional Manager within one day of default, if any
AT MPRDC HQ Level (GM Finance Section)	
Financial Restructuring & Novation Requests	• To send all Legal document (as submitted by Successful Bidder) to the legal/ financial Consultant for review & comment. • After receiving the opinion from legal/financial consultant, MPRDC to communicate the same to the Successful Bidder • To issue a letter to the Concessionaire and approved the documents subject to the incorporation of comments in the documents • Report to the decision-making level (finance) within one day of default, if any
Equity Transfer	• To send all Legal document (as submitted by Successful Bidder) to the legal/ financial Consultant for review & comment. • After receiving the opinion from legal/financial consultant, MPRDC to communicate the same to the Successful Bidder • To issue a letter to the Concessionaire and approved the documents subject to the incorporation of comments in the documents • Report to the GM Finance and MD MPRDC level within one day of default, if any

7.1.2.7 Performance Monitoring & Review

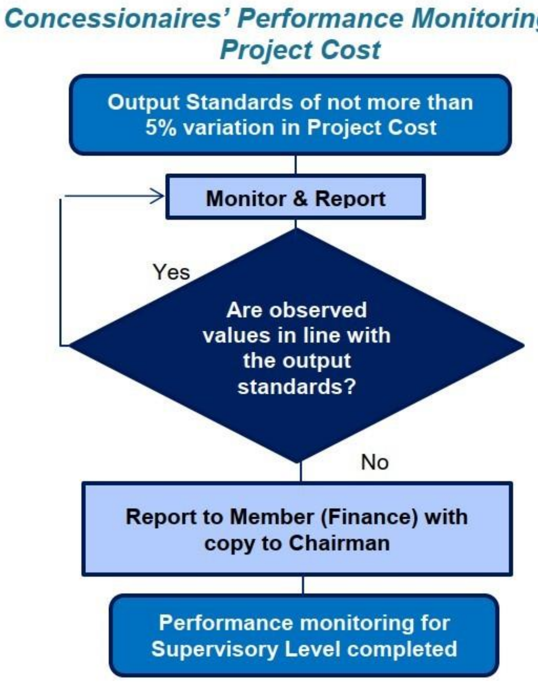
Performance of the concessionaire and other related parties should be regularly monitored and reported by the Independent Engineer/Authority Engineer to ensure the project remains within the pre-planned cost levels and timelines. In case a performance monitoring and rating system exists in the organization, the results of such regular monitoring shall be additionally sent to officials designated for that purpose.

7.1.2.7.1 Concessionaire

For any project to function smoothly, concessionaires' performance needs to be monitored regularly. As the Concessionaire forms the main party with whom the contract is signed and who holds the major obligations of executing the agreement apart from the MPRDC, it is important that its performance is tracked on regular basis to spot defaults and situation that might later become a cause of stalling of the project early in the project execution lifecycle.

Major parameters to be evaluated from the Authorities' point of view are throughout the lifecycle are:

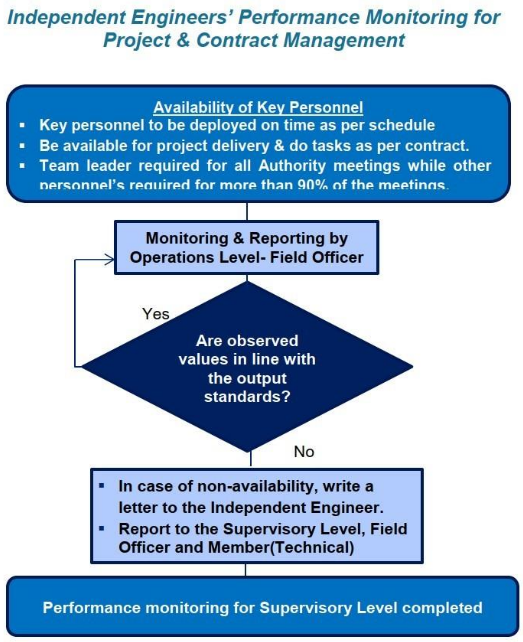
- Timeline – Actual Vs. Targeted Date
- Project Cost
- Quality of Services
- Safety Considerations
- Communication and Responsiveness
- Project and Contract Management



In each of these parameters, what needs to be taken care of is that the value of concessionaires' performance in a parameter, matches the indicator value of the parameter to a reasonable extent and in the stipulated time. Discrepancies, if any, and beyond the control of the MPRDC in- charge need to be escalated to the next level on timely basis so that necessary action can be taken on the same.

7.1.2.7.2 Independent Engineer

The Independent Engineer has a major role to play in ensuring that the project progress is in line with the set timelines, the quality of highway developed by the Concessionaire is as per the desired standards and discrepancies/issues, if any, have been flagged and brought to the notice of the MPRDC officials in a timely manner. Major performance parameters to be monitored for reviewing Independent Engineers' performance are:

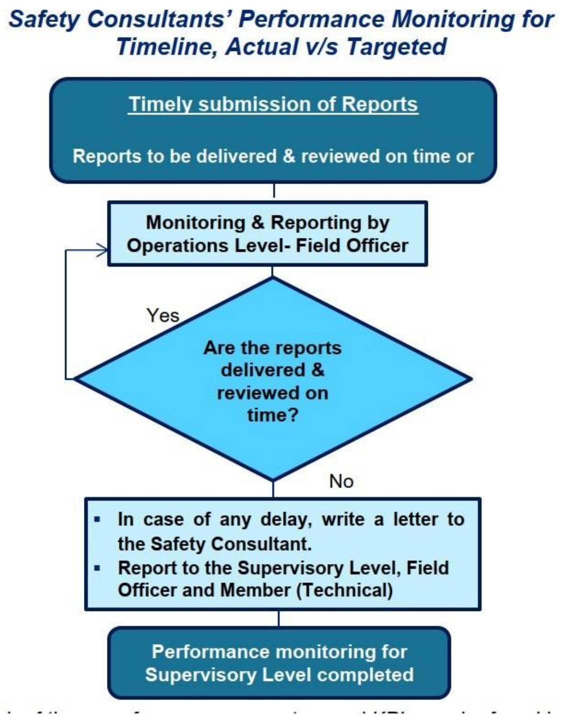


- Independent Engineer KPIs throughout the Lifecycle
- Timeline – Actual Vs. Targeted Date
- Quality of Services
- Communication and Responsiveness
- Project and Contract Management

7.1.2.7.3 Safety Consultant

Safety Consultant is another important related party that is responsible for safeguarding that the quality and safety requirements from a highway project and ensuring that any potential or actual defects observed, are brought to the notice of the MPRDC officials in timely manner.

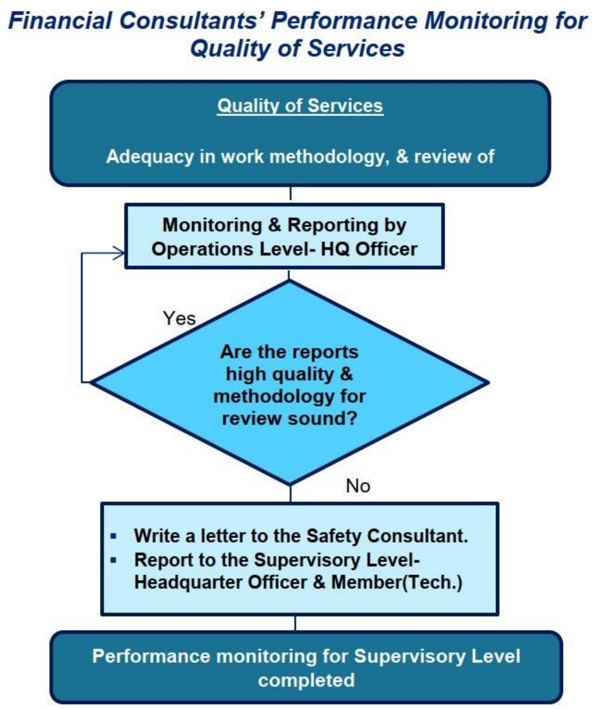
- Timeline – Actual Vs. Targeted Date
- Quality of Services
- Project and Contract Management



7.1.2.7.4 Financial Consultant

Financial Consultant has a significant role in reporting and taking care of all financial matters related to a project. They review all the financing documents submitted by the Concessionaire and hence provide verdict on whether the Concessionaire has submitted accurate documents with zero errors.

- Timeline – Actual Vs. Targeted Date
- Quality of Services
- Project and Contract Management



7.1.2.8 Regular Reporting & Escalation Mechanism

In any Highway concession, even if management and monitoring of each project activity is done actively, it has been observed that no such activity is complete without regular and timely reporting of these activities by the MPRDC officials at higher levels. Moreover, it is critical from the project execution viewpoint that any issue which crops up is escalated in a timely fashion to the higher MPRDC level for fast, suitable, and timely action.

7.1.2.8.1 Regular Reporting & Review

Regular reporting must be done on a regular basis to apprise higher levels in MPRDC of the project status and key issues as well as seek necessary approvals. Also, the Chief Engineer must review the information provided to them to provide suggestions and intervene at appropriate times to ensure that the project remains on track.

7.1.2.8.2 HQ officer to Chief Engineer Reporting

The objective of HQ officer to Chief Engineer reporting is to apprise Supervisory Level of the project progress and seek support for key decisions or approvals. The HQ officer to Chief Engineer reporting includes Status reporting, Performance reporting and other reporting. Within each category, the ollowing reports must be prepared at HQ officer Level and submitted to chief engineer Level for review monthly. Chief Engineer should then meet monthly to review submissions from HQ officer and take appropriate action on the same.

Status Reporting

- Project Progress
- Status of Activities which are MPRDC's Responsibility
- Status of Activities which are Concessionaire's Responsibility
- Status of Action Plan finalized in previous period's report

Performance reporting

- Service Performance
- Receipt & Payment mechanism and escrow account operations
- Independent Engineer's / Safety Consultant's observations

Other Reporting

- Issues or disputes identified
- Contract Management concerns

7.1.2.8.3 Chief Engineer to Managing Director Reporting

The objective of Chief Engineer to MD reporting is to appraise Decision Making Level of key issues/ challenges in contract administration and of activities that require their approval and/ or intervention. Chief Engineer to MD reporting also consists of Status reports, Performance reports and other reports. These reports must be submitted at-least on a quarterly basis. MD must then meet each quarter to review the submissions from chief engineer and take appropriate action on the same. In case of emergency, the status/ performance must be reported not later than 3 days from the date of its occurrence for immediate action and approvals.

Status Reporting

- Project Status and approvals required

Performance reporting

- Concessionaire non-performance
- Additional concerns

Other Reporting

- Issues or disputes identified
- Contract Management concerns

7.1.2.8.4 Escalation in Cases of Default

In case any of the parties do not fulfil the requirement of Concession Agreement, the same needs to be escalated at the appropriate level within the MPRDC. The escalation is required in the following conditions:

(a) Default at the end of the Concessionaire or the other parties such as Independent Engineer, Safety Consultant, Escrow Agent, Senior Lenders etc.

(b) Default within the MPRDC

- Escalation in case of default by concessionaire or other parties
- Escalation in case of default within the MPRDC

7.1.3 Execution of EPC Contract Projects

7.1.4 Execution of Regular Contract Projects

7.1.5 Execution of Consultancy Projects

7.2 MPPWD (ROAD & BRIDGES)

MPPWD's primary responsibilities include construction of roads, bridges, flyovers and government buildings in Madhya Pradesh. Core functions which are undertaken by PWD, have been detailed hereunder:

7.2.1 MPPWD Functions under Different Sections

S. No	**Functions**	**Activity**
1	**Engineer-in-Chief:**	**Core Function:** • Heading the Department

	Overall Administration & Management of MPPWD	• Administrative, Technical and Policy decisions for MPPWD **Key Responsibilities:** • Overall In-charge of construction, up gradation and maintenance of National Highways, Major District Roads, other District Roads, Village Roads and construction of bridges, Flyovers and ROBs under PWD in the State of MP.
2	**Budget, Planning & Finance**	**Core Function budget:** • Budget preparation, allotment, allocation, appropriation, re-appropriation, supplementary budget proposal, other etc. • Verification of actual work progress against fund utilization. **Core Function Account Branch:** • Compilation of returns & reports, salary administration, reimbursement **Key Responsibilities:** • Compilation of Annual Demand Estimates for Grants • Budget Allocation to Zones, • Expenditure Control • Reconciliation of Monthly Accounts • Compilation of returns & reports • Issue of LOC
3	**Contractor Registration, Procurement and Tenders**	**Core Function**: • Contractor registration for all works department. • Supervision of the procurement of items and draft tenders inviting offers for procurement • Tender evaluation **Key Responsibilities:** • Maintaining records of tenders and details of procurement. • Undertaking listing of the annual demand for items submitted by the zones
4	**CRF /Sanchar (Road)/ Bridges/ NABARD**	**Core Function:** • Overseeing constructions and maintenance of government buildings mandated by GoMP & GoI • Oversee projects funded by NABARD **Key Responsibilities:** • DPR, Revised DPR, Inventory submission. • Approval on proposals related to roads, buildings, CRF and NABARD.
5	**NDB Funded Projects**	**Core Function:** • Overseeing the projects funded by New Development Bank (NDB). **Key Responsibilities:** • Responsible for execution of projects under NDB (project cost -USD 500 Mn for Roads, USD 250 Mn for bridges)
6	**Establishment**	**Core Function:** • Establishment, personnel and other matters related to Human Resources in PWD. • Formulation of policies, rules, regulations, and guidelines related to human resources of PWD. **Key Responsibilities:**

		• Recruitments and salary inputs to finance department.
7	**Quality Control & Training**	**Core Function:** • Control, monitor and maintain all processes linked to quality assurance by maintaining a quality register • Planning & organizing trainings **Key Responsibilities:** • Undertaking quality checks of material, site inspection in case of any complaint from stakeholders, and supervision and management of miscellaneous works in E-in-C office
8	**Legal & Arbitration**	**Core Function:** • Monitoring of court cases pertaining to E-in-C office and Government • Manage disputes related to contract awarding • Address disputes between parties under the contract by acting as the third party between the PWD and the contractor **Key Responsibilities:** • Maintain records of the arbitration cases to make them available to the concerned parties whenever required • Other necessary assistance for contesting court cases.
9	**Information Technology**	**Core Function:** • Overall management of IT systems including hardware and software in PWD. **Key Responsibilities:** • Development and maintenance of online platforms for various PWD functions including Work Management System (WMS), Employee Management System (EMS), and Asset Management System (AMS)
10	**Vigilance cell**	**Core Function:** • Deal with establishments to comply with Departmental Enquiries (DE) against employees of PWD. **Key Responsibilities:** • Addressing complaints and reports pertaining to projects, contractors or employees in PWD.
11	**Design (Under Chief Engineer-Bridge Zone)**	**Core Function:** • Oversee bridge designs. **Key Responsibilities:** • Responsible for design of bridges including, survey, feasibility, BOQ and DPR
12	**Electrical and Mechanical**	**Core Function:** • Management and allocation of resources such as equipment, machines, vehicles, and tools for projects. **Key Responsibilities:** • Responsible for the works related to electrical installation, central heating, air conditioning, lifts, firefighting, LT substation, public address system and CCTV in all government residential and nonresidential buildings.
13	**MPPWD Zones**	**Core Function/ Key Responsibilities:** • Responsible for construction, upgrading, and maintenance works. • Supervising works of contractors, managing project cost, staffing, and scheduling as well as working to ensure plans adhere to contract specifications.

		• Assisting in the preparation, review, and administration of contractual proposals relating to construction, upgrading, and maintenance contracts. • Preparing bids, negotiating for supply of materials and other construction services, and securing all necessary approvals • Maintaining a database of the existing Core Road Network with its condition, capacities, traffic levels, origin and destination survey (OD) etc.
14	**Bridge Zones**	**Core Function/ Key Responsibilities:** • Responsible for the construction and maintenance of bridges, acquisition of land, settlement of contractor claims • Supervising works of contractors, managing project cost, staffing, and scheduling as well as working to ensure plans adhere to contract specifications. • Maintaining a database of bridges • Preparing estimate of bridge for Government's sanction.
15	**National Highway Zone**	**Core Function/ Key Responsibilities:** • Achieve uniform maintenance and construction standards on all National Highways • Supervising works of contractors, managing project cost, staffing, and scheduling as well as working to ensure plans adhere to contract specifications. • Coordination work with NHAI
16	**Project Implementation Unit**	**Core Function:** • Construction of new Government buildings for all departments of GoMP. • Up gradation of government buildings. **Key Responsibilities:** • All approvals required for execution of work under PIU • All requisite Administrative Approvals (AA) • Approvals of annual plans for PIU • Approval of deviation statement of tendered work • Approval of revised estimate • Submission of action taken report to Government • Submission of demand estimates for grants to Government • Redressal of public grievance
17	**Office of Chief Architect Design**	**Core Function:** Preparation of plans & designs for government buildings and preparation of construction drawings. **Key Responsibilities:** • Review and approval of concept plans, building designs and working drawings. • Preparation of Detailed Project Report • Verification and approval of drawings submitted by consultants • Technical Approvals

18	**PIU, Zonal Offices**	**Core Function:** • Execution of building projects **Key Responsibilities:** • Preliminary estimates for AA & TS/ES • Scrutiny of DNIT/DNIQ submitted by division • Approval for procurement of items as per schedule of items • Contract Management, monitoring & reporting • Verification/approval of deviation statement for tendered work within 10% of the value of the contract. • Other requisite approvals and verification requested from PIU divisions.

7.2.2 MPPWD Functions under Different Positions at State Level

PWD Office	Officer	Function
Head Office	E-in-C	• Approval/submission of Preliminary Estimates for AA & ES • Receive approval of AA & ES • Approval/Submission of Detailed Estimate/DPR • Approval of draft notice inviting tenders for various works • Approval of annual demand for store items • Approval of draft notice inviting quotations for procurement of store items • Finalizing tenders & quotations • Negotiation of tenders/quotations • Inspection of works at site • Review of material test reports • Approval of deviation statement of tendered work • Approve revised estimate • Approve/submission of request for procurement of store items • Review of action taken report • Verification / approval of annual demand for store items • Submission of demand estimates for grants • Information of budget approval to zone • Approve LOC • Approval for issuance of NOC • Approve issuance of certificates pertaining to roads • Reply to assembly questions • Contractor enlistment/renewal • Maintenance of contractor register • Redressal of public grievance
	Drawing Section	• Check/Scrutinize Draft Notice Inviting Tenders for various works • Check & recommend for approval of Deviation Statement • Finalization of Revised Estimate • Preparation of structural drawings & tracings • Returns and reports submitted by zones
	Design Section	• Preparation of structural designs • Codes & specification cell (c & s) • Modification of SOR/ASOR as per proposal received from Zone
	Accounts Section	• Compilation of returns & reports • Oversee salary disbursals as Drawing & Disbursement Officer

		• Verification & payment of reimbursement bills of staff
	Monitoring & Planning Cell	• Preparation of Draft of Five-Year Plan and annual plan: • Returns and reports submitted by Zones
	Budget Section	• Compilation of Annual Demand Estimates for Grants • Budget Allocation to Zones • Request & Receive of LOCs for Tribal/Non-Tribal & SCCP • Issue of LOCs for NABARD/Deposit works/SCCP • Issue of LOCs for Other works • Issue of LOCs for Tribal Areas (TASP) • Expenditure control • Reconciliation of Monthly Accounts • Correspondences • Compilation of returns & reports
	Works Section	• Procedure for AA&ES for Preliminary Estimates received from Zonal Offices • Technical Sanction for Estimates/DPRs received from Zonal Offices • Correspondences Work • Compilation of concerned returns and reports
	General Section	• General correspondence
	Legal Cell	• Filing of case in the Court of Law • Process after receiving filed petition in the Court • Receive Court order • Process for filing reply to the Court • Process after receiving Court judgment • Compilation of concerned returns and reports
	Stores & Purchase Cell	• Scrutiny of procurement of items • Prepare & verify draft notice inviting quotations for procurement of items • Floating tenders for procurement of material • Compilation of annual demand for items to stores submitted by zones • Compilation of returns and store details of materials • Process for procurement of items • Overall process of tendering at stores & purchase cell • Award of contract and completion of agreement
	Establishment Section	• Appointments • Transfers • Promotions • Coordination with legal cell • Maintenance of service records • Maintenance of seniority and incumbency details • Retirement benefits • Proposal of recruitment, transfer, Salary inputs, Confidential Reports (CR) • Staff Management-Attendance, leave records, TA/DA, Medical • Sharing reports with other sections and offices.
	ACR Cell	• Maintenance of ACRs (Annual Confidential Reports)
	Vigilance Section	• Verify Integrity Certificate • Departmental Enquiry reporting regarding complaints against officers and officials
	Cash Section	• Maintenance of subsidiary cash book

	Contract Section	• Registration of contractor • Renewal of contractor • Correspondence related to contracts • Agreement and processing thereof • Tender process • Dispute (arbitration, work related dispute) • CAG (For para and advance para) • Split sanctions and working estimate
	IT Cell	• Perform online tendering process • Online management, monitoring & accounting system • Support & maintenance of application online • Support & maintenance of e-Payment application • Support & maintenance of e-salary application • Support & maintenance of PMIS Application • Support & maintenance of GIS Application • Maintenance of PWD website and email id creation • Management of IT infrastructure • Training cell, plan, budget • Empanelling key training agencies • Training process
Quality Control Office	Sup. Engg.	• Verify & forward material test report • Submission of action taken report
	Material Testing Laboratory	• Material testing • Submission of material sample to the lab • Testing of material sample • Originating test report • Submitting the report to the concerned EE/AE and forwarding test report copies to other offices
	Quality Manager	• Inspection of roads with reference to design parameters • Material testing at site • Submission of report to EE and other offices • Rectification of discrepancy with the test report • Submission of ATR by the AE after rectification • Inspection of site by various officers • Inspection of site by AE in charge and EE in charge

7.2.3 MPPWD Functions under Different Positions at Field Level

PWD Field Offices	Officer	Functions
Subdivision Office	Sub Engineer	• Collection of data, conducting surveys & investigations and preparation of estimates and drawings for works • Ensuring works are carrying out according to specifications. • Record measurement of work • Prepare and submit periodic progress reports to SDO • Ensure proper maintenance of work • Report cases of accidents, deaths on work immediately • Make adequate safety arrangements against losses or damages • Ensure public property and utility services are used properly • Verification & submission of preliminary estimates • Inspection of work at site for utilities shifting

		• Verification and submission of Detailed Estimate/DPR • Issue of registers to section(s) • Submission of filled MBs to SDO • Verification/approval of indent raised by section(s) • Inspection of work at site • Verification of Material Test Report • Approval/verification of deviation statement of tendered work • Verification of Revised Estimates • Verification of Machinery Outturn • Submission of request for procurement of Items • Verification of bill • Payment of vouchers • Verification of main Cash Book • Verification of Subsidiary Cash Book (Regular Employees) • Verification of Subsidiary Cash Book (Casual Labour) • Submission of Annual Demand for items to stores • Submission of Annual Demand for budget • Information of budget approval from division office • Request & receive Letters of Credit (LC) • Receipt of cash through TWD & CFC • Inspection of stores • Submission of filled MBs to SDO • Compilation of assets inventory (Roads, Buildings & Bridges) submitted by sections • Submission of request to update item wise rates in SOR • Submission of returns and reports to division office • Submission of action taken report to division office • Redressal of public grievance
	SDO/Project Engineer (PIU)	• Survey and investigation of projects/schemes • Ensuring no work is commenced without sanction of detailed estimates. • Ensuring no expenditure is incurred without financial sanction. • Check initial ground levels and layouts before commencement of work. • Measurement of works • Checking measurements recorded by Sub Engineers. • Ensuring quality of all items • Verifying zero deviation from approved drawings and specifications • Inspection of works • Timely action for removing encroachments • Ensuring quality of work • Generation of running bill • Generation of supplier bill (GR) • Preparation of receipt & payment vouchers on IFMIS • Compilation of returns and reports submitted by sections • DPR and measurement verification
Division Office	Executive Engineer at	• Ensuring no work is commenced without sanction of detailed estimates.

	division level/ Divisional Project Engineer (PIU)	• Ensuring no expenditure is incurred without financial sanction. • Review of construction program • Review of physical and financial progress • Assess the requirement of land for work • Acquisition and transfer of land • Testing of construction material • Monitoring and controlling quality of work • Payment of contractors • Measurement of work • Ensuring compliance with Store Purchase rules. • Ensuring estimates of annual repairs are sanctioned before execution • Timely action for removing encroachments • Periodic inspections • Maintaining records of accounts. • Inspection of Sub-division offices • Verification & submission of Preliminary estimates for AA & TS • Approval/submission of Detailed Estimate/DPR • Receive approval of AA & ES • Inspection of work at site for utilities shifting • Assistance for preparation of estimate for utility shifting • Draft Notice Inviting Tenders for various works • Finalizing Tenders for works • Draft Notice Inviting Quotations for procurement of Items • Award of Contract and completion of agreement • Issuance of registers • Inspection of works at Site • Conducting Material Test and verification of the report • Verify/approval of deviation statement of tendered work • Verify/approval of revised estimates • Approval of indents received from various Sub-Divisions • Approval / submission of request for procurement of Items • Verification / passing of Bill • Payment of vouchers • Verification of Subsidiary Cash Book • Verification and submission of Divisional Monthly Account to AG • Submission of returns and reports to Circle • Submission of action taken report to division office (QC) • Verification and submission of annual demand estimates • Information of budget approval to division • Issuance of NOC • Issuance of certificates pertaining to roads • Scrutinizing contractor registrations • Replying to Assembly questions • Redressal of Public grievances • Verification of Service Books • Verification of Subsidiary Cash Book • Verification & payment of reimbursement bills of staff • Preparation of drawings & tracings • Contract management • General correspondence

		• Maintenance of main Cash Book
	Drawing section	• Verification of Deviation Statement • Verification/Finalization of Revised Estimates • Compilation of returns and reports submitted by sections and SDO • Compilation of Annual Demand Estimates for grants • Verification of technical correctness of bills from SDO • Preparation of drawings & tracings • Preparation of Linear Charts based on reported progress • Propose new Rates and new Items for Schedule of Rates to Circle
	Correspondence section	• Verification and issuance of MBs/MAS/SOB/T&P Registers to SDO • Submission of filled MBs • Issuance of approved indents to SDO • Correspondence with respect to Court cases • Maintenance of Main & Subsidiary Cash Book • Preparation of Establishment and day to day correspondence • Establishment & staff management • Withdrawal of salary • Submission of returns and reports to Circle • Compilation and submission of Annual Demand for Items
	Accounts section	• Award of contract • Maintenance of contractor ledger • Maintenance contractor bill register • Verifying contractor bills & material consumption • Passing of supplier bill (i.e. Material Supply) • Preparation of receipt & payment vouchers • Preparations of Divisional Monthly Account to AG • Budget allocation to Sub Division • Transfer entries • Verification of reimbursement bills of staff
Circle Office	Superintendent Engineer	• Oversee personnel transfer of class 2 and class 3 • Inspection of Divisional offices • Supervision of works • Inspection of major works • Review of the monthly progress of work • Issuance of necessary directions to EEs • Arrange refresher course for Engineers. • Arrange trainings for newly recruited engineers. • Verification & submission of preliminary estimates for AA & ES • Receive approval of AA & ES • Approval/submission of Detailed Estimate/DPR • Scrutiny of DNIT/DNIQ submitted by Division • Approval/Submission of request for procurement of items as per schedule of items. • Scrutiny and processing of tenders • Inspection of works at site

		• Verification /approval of Deviation Statement for tendered work within 10% of the value of the contract • Verification /approval of Revised Estimate • Submission of returns and reports to Zone • Submission of action taken report to Zone • Verification / Submission of Annual Demand for store Items • Submission of Demand Estimates for grants • Information of budget approval to Division • Approval for issue of NOC • Reply to Assembly questions • Redressal of Public Grievance • Verification of Service Books • Monitoring of Progress reports for various Works • Scrutiny of Linear Charts based on reported work progress returns from Division
	Drawing Branch (SE Bridge)	• Scrutiny of DNIT/DNIQ
	Works Section (PIU and Bridge upto 2 crores)	• Receiving DNIT/DNIQ from Division Office • Scrutiny of tender document • Receipt of Deviation Statement • Compilation of concerned returns and reports submitted by Division
	Establishment Section	• Manage Appointments, Transfers, Promotions • Coordination with Legal Cell • Maintenance of Service Records • Maintenance of seniority and incumbency details • Retirement benefits • Proposal of recruitment, transfer, salary inputs, Confidential Reports (CR) • Staff Management-Attendance, leave records, TA/DA, medical records • Sharing reports with other sections and offices.
Zone Office	C.E (same role as SE but dealing with value of >2 crores)	• Transfer and posting of officials up to the level of AE and other staff of non-Gazetted establishment within respective zone • Budget expenditure and revenue • Verification & submission of Preliminary Estimates for AA & ES • Receipt of approval of AA & ES • Receipt of DNIT/DNIQ from Division Office of more than INR 2 crores • Approval/submission of Detailed Estimate/DPR • Draft Notice Inviting Tenders for various works • Finalizing Tenders for works • Negotiation of tender for works • Draft Notice Inviting Quotations for procurement of items • Finalizing quotations • Inspection of works at site • Verification of Material Test reports • Verify/Approve Deviation Statement for Tendered Work • Verify/Approve Revised Estimate • Approve/Submission of Request for Procurement of Store Items

		• Submission of Returns and Reports to Zone • Submission of Action Taken Report to Head Office • Verification / Submission of Annual Demand for Store Items • Submission of Demand Estimates for grants • Information of budget approval to Circle • Direct Issue of NOC • Direct to Issue certificates pertaining to roads • Reply to Assembly questions • Redressal of Public Grievance • Verification of Service Books • Permission for utility shifting, road cutting • Permission for erection of hoardings, construction of structures along the PWD roads • Deposit Works • Scrutinizing the Bids • Verify/Finalize Revised Estimate • Scrutinize of Deviation Statement • Propose new rates for SOR to Zone • Proposed new items for SOR to Zone • Any other duties and responsibilities assigned by government and E-in-C.
	Drawing & Disbursing Officer (DDO)	• Verification of Subsidiary Cash Book • Verification & payment of reimbursement bills of staff • Verification & payment of contingency bills
	Drawing section	• Preparation of draft Notice Inviting Tenders for various works • Finalizing tenders • Scrutiny of bids • Verification of Deviation Statement • Verification /finalisation of Revised Estimate • Preparation of Drawings & Tracings • Scrutiny of Linear Charts based on reported Work Progress Returns from Circle • Proposing new rates & items for SOR to Head Office • Compilation of Returns and Reports submitted by Circles
	Quality Control (QC) Cell	• Inspection of Works at site • Verification of Material Test Reports
	Contract Section	• Framing of award of work • Correspondence related to contract • Agreement and processing thereof • Manage disputes (Arbitration, work related dispute) • Split up sanctions and working estimate
	Monitoring & Planning Section	• Monitoring of progress reports for various works • Compilation of returns and reports submitted by circles
	Works Section	• Receiving DNIT/DNIQ from Circle Office/Division • Scrutiny of tender document • Receipt of Deviation Statement • Right to Information • Contract Management • Works related correspondences • Compilation of concerned Returns and Reports
	General Section	• General correspondence
	Stores & Purchase Cell (Occasional Purchase)	• Float tenders for procurement of material • Analyzing request of the material received from various offices

		• Approval of procurement
	Establishment Section	• Proposal of recruitment, transfer, Salary inputs, Confidential Reports (CR) • Staff Management-Attendance, leave records, TA/DA, Medical • Sharing reports with other sections and offices.
	ACR Cell	• Maintenance of ACRs (Annual Confidential Reports)
	Cash Section	• Maintenance of Subsidiary Cash Book
	Budget Section	• Compilation of Annual Demand Estimates for grants • Budget allocation to circles • Compilation and submission of returns & reports
	Legal Section	• Correspondence with respect to Court cases • Filing of case in the Court of Law • Process after receiving filed petition in the Court • Obtaining Court order • Processing filing reply to the Court • Compilation and submission of returns & reports

Following are the Core Activities and procedures of MPPWD:

7.2.4 Budget & Finance

The Department's financial management is based on the Integrated Financial Management Information System (IFMIS) developed by the Department of Finance. IFMIS is used for the submission of budget, allocation of funds and payments including salary, reimbursements etc. This module covers the As-Is assessment of budget allocation, billing and payments to contractors, billing and payments for periodic maintenance, approval of loans, salary administration, reconciliation of expenses and audit records.

The Budget and Finance system includes some of the vital processes pertaining to MPPWD like budget allocation, audit of the records, billing and payment to contractors, billing and payment (NH), release of fund for maintenance work etc. These processes have been discussed, understood and mapped after thorough interaction with concerned officials from different offices (Headquarter, Zonal, Circle, Division and Sub-Division).

The budget is prepared by PWD Headquarters in September / October for the following Financial Year. It is prepared on the basis of all sanctioned on-going works and proposed new works, including widening / strengthening of roads, rehabilitation / reconstruction of roads and bridges, and maintenance / repair works for roads and bridges. The budget, for Plan and Non-Plan Works, is based on Head Wise, Scheme Wise, Project Wise reports and demands for funds arising in the Divisions and submitted to PWD HQ through Circles and Zones. PWD HQ compiles these budgets sent to the Secretary PWD and secretary PWD requests and submits department budget to Department of Finance, GoMP.

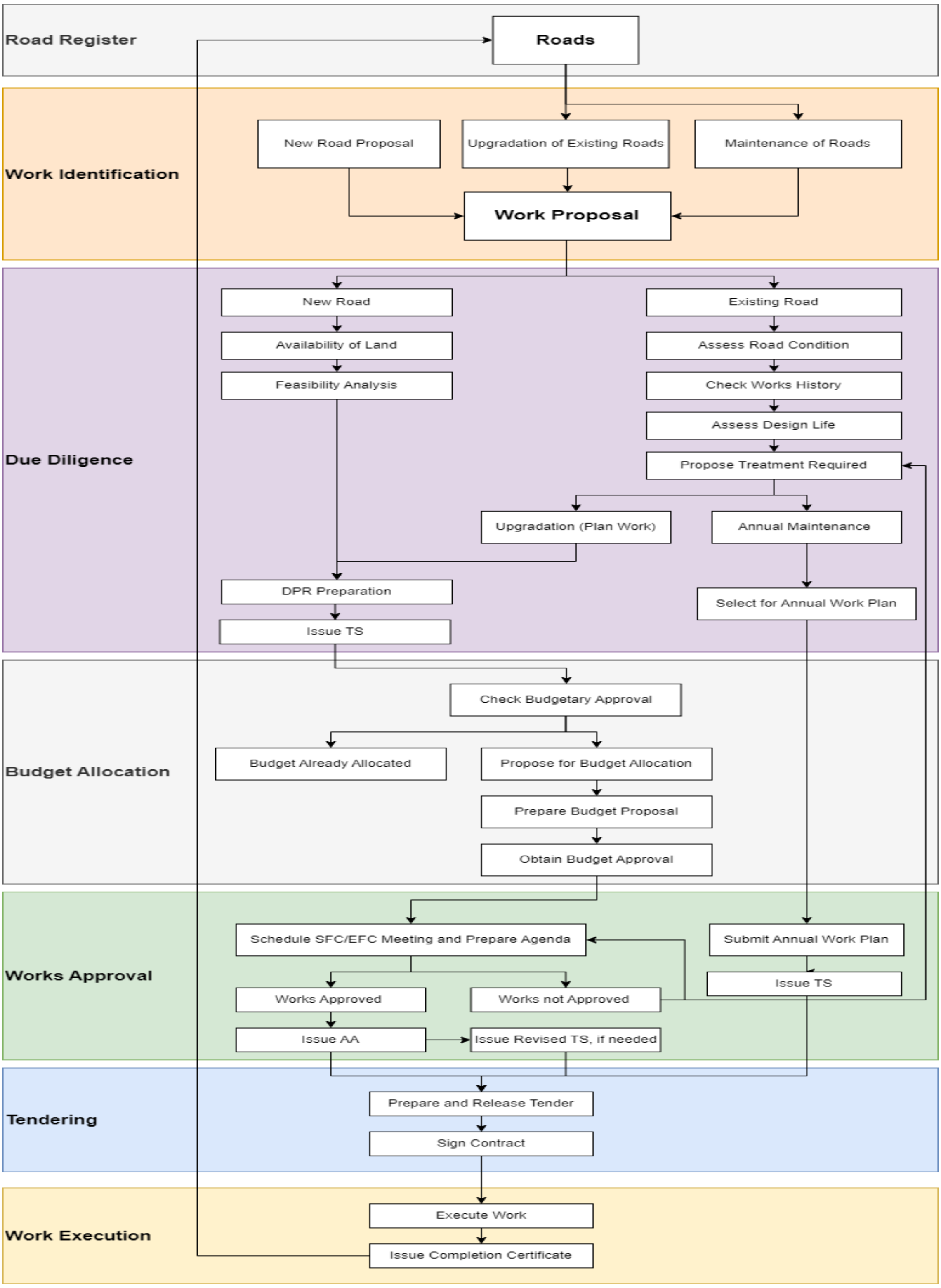
Details of the sanctioned budget are forwarded to the PWD Engineer-in-Chief through Secretary (PWD) and allotment of budget done on demand basis through IFMIS portal. All Budget estimates are prepared in the "Integrated Financial Management Information System" (IFMIS) application. However, this system does not incorporate any form of cost control, or cost centers for decision making purposes.

7.2.5 Demand Management and Works Approval

Public Works Department receives demand letter from Public Representatives and concerned institutions for development of Roads and Bridges. These demand letters are taken on record and processed for necessary action at different levels. Some of these are of high priority and require quick response, while others are put up for budget allotment after necessary due diligence like feasibility assessment, socio economic analysis, financial requirement, etc. Many times, such Works are added in budget proposal at last moment. In such cases Budget Allotment becomes is a kind of in-principal approval and necessary due diligence is conducted after approval.

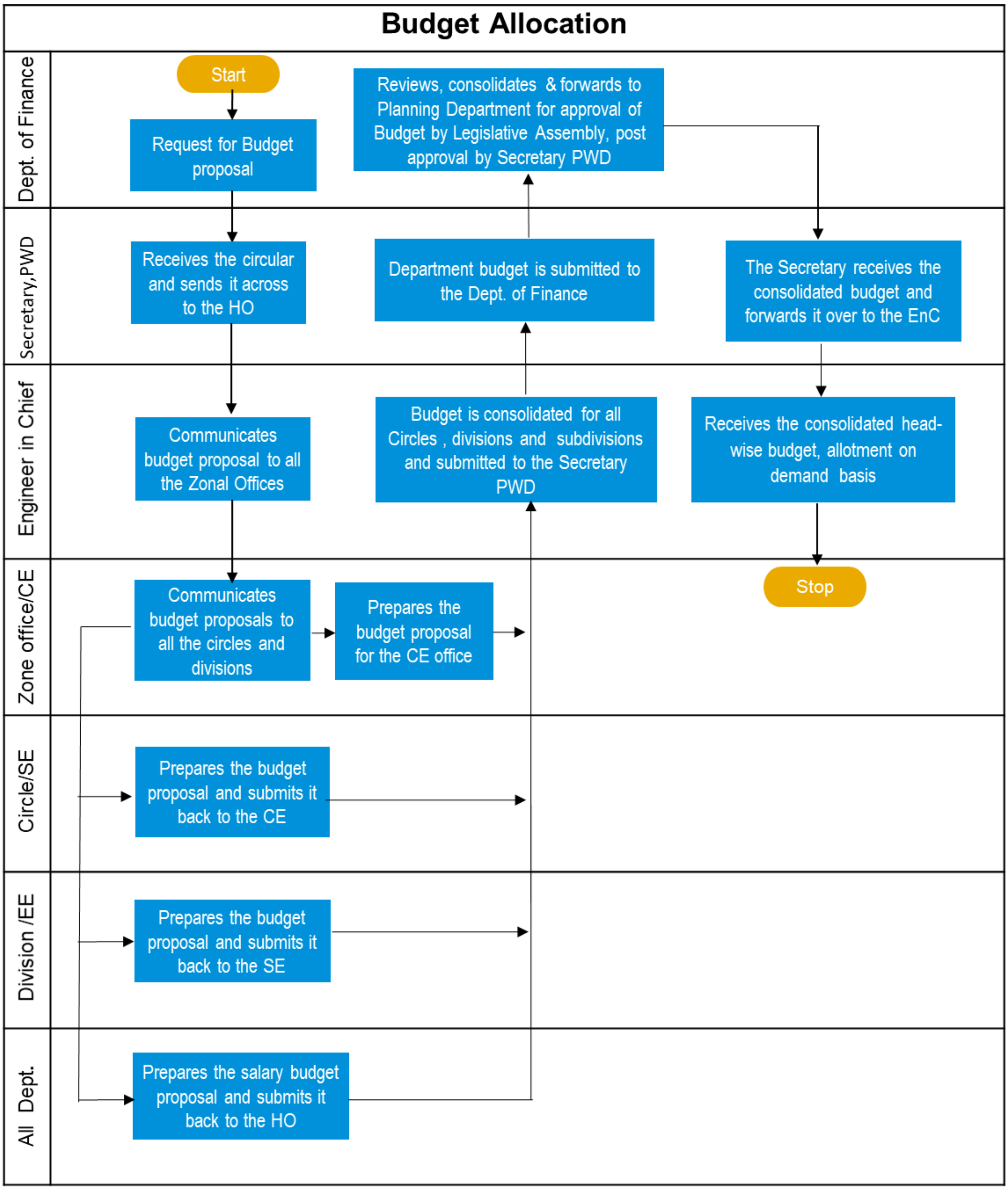
Due Diligence is conducted by respective offices i.e. E-in-C Office and MPRDC, where status of road, recommended treatment, estimated cost, DPR, etc. are prepared and submitted for budget allotment and administrative approval. There are 3 different committees i.e. SFC, EFC and PSC at Mantralaya level that study the Work Proposals in detail and take decision. On the basis of commit's decision, Mantralaya office issues Administrative Approval (AA). After obtaining AA, Works are taken up for revised Technical Sanction (if required) and Tendering Process by respective units within the department.

Finance Department has fixed some budgetary limits for each department any financial year. This limit is called Bill of Sanction (BOS). Before issuing any approval, it is responsibility of approval granting authority to check whether administrative approvals granted so far in the financial year, is within the limit of BOS or not.



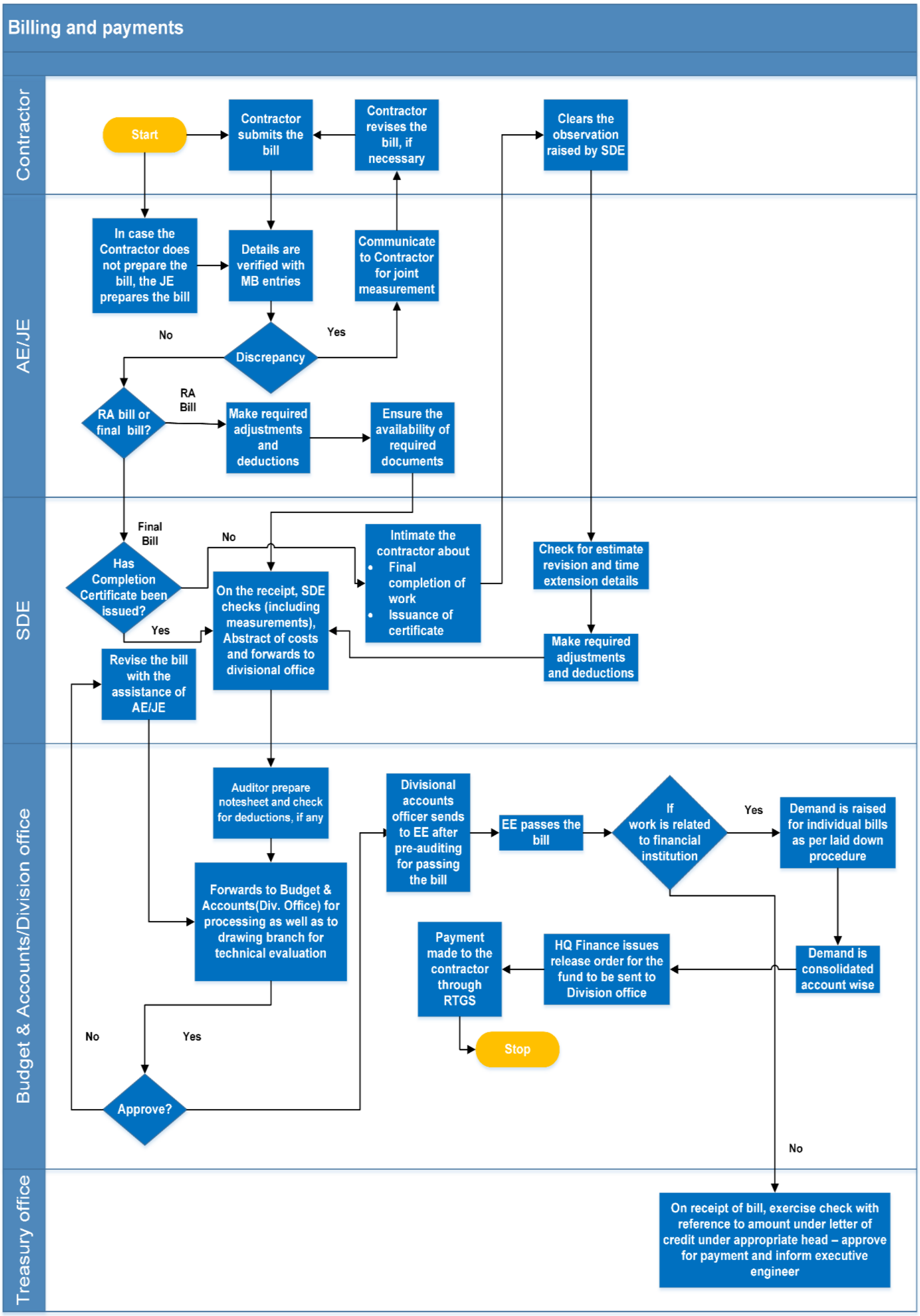
7.2.6 Budget Allocation

This process gives the detail understanding of how budget proposals are prepared and submitted by all the concerned offices and allocation of the same.



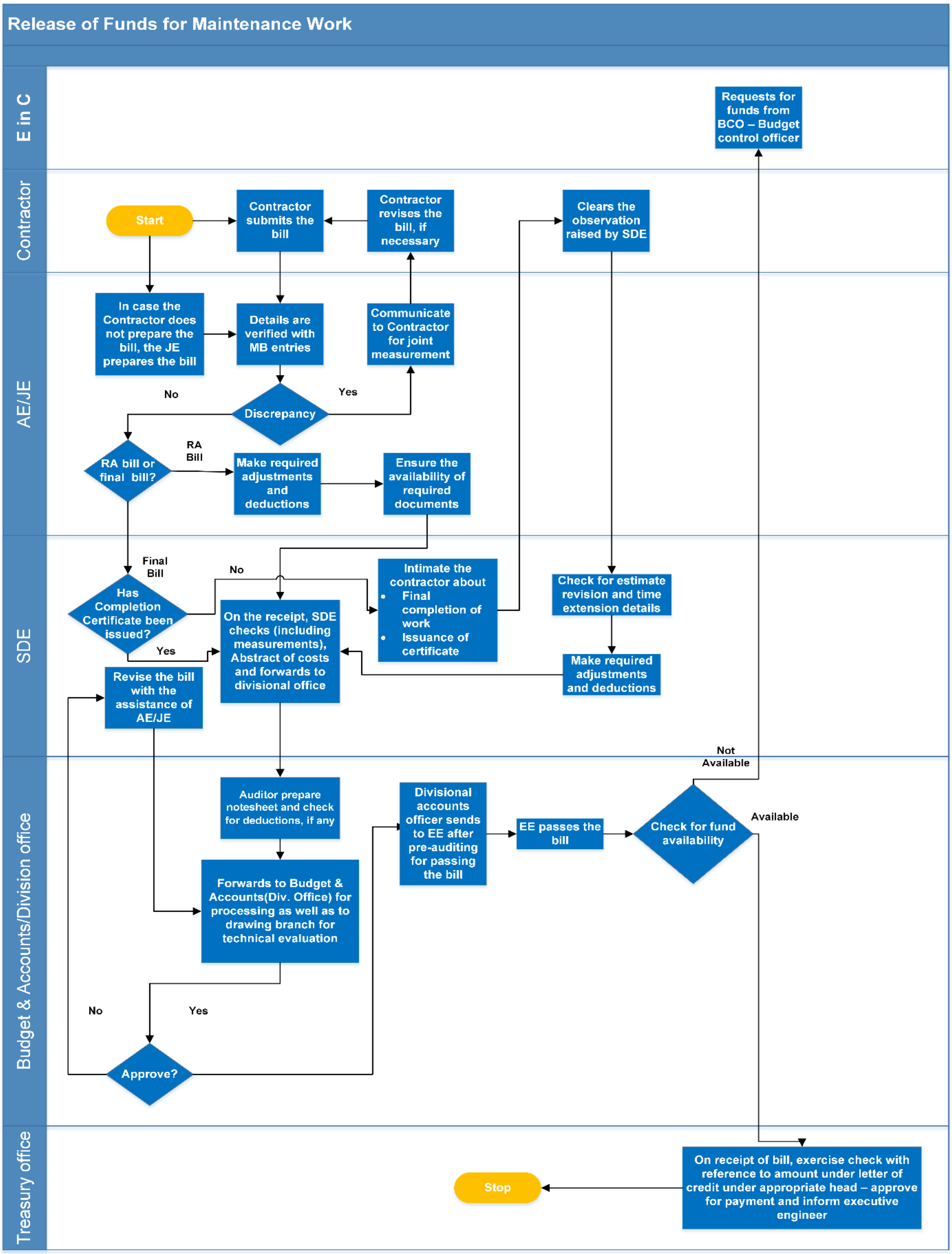
7.2.7 Billing and Payments

This process provides a detailed understanding from the bills approval process submitted by the contractors, and review and scrutiny done by the EE/CE to payments made to the contractors



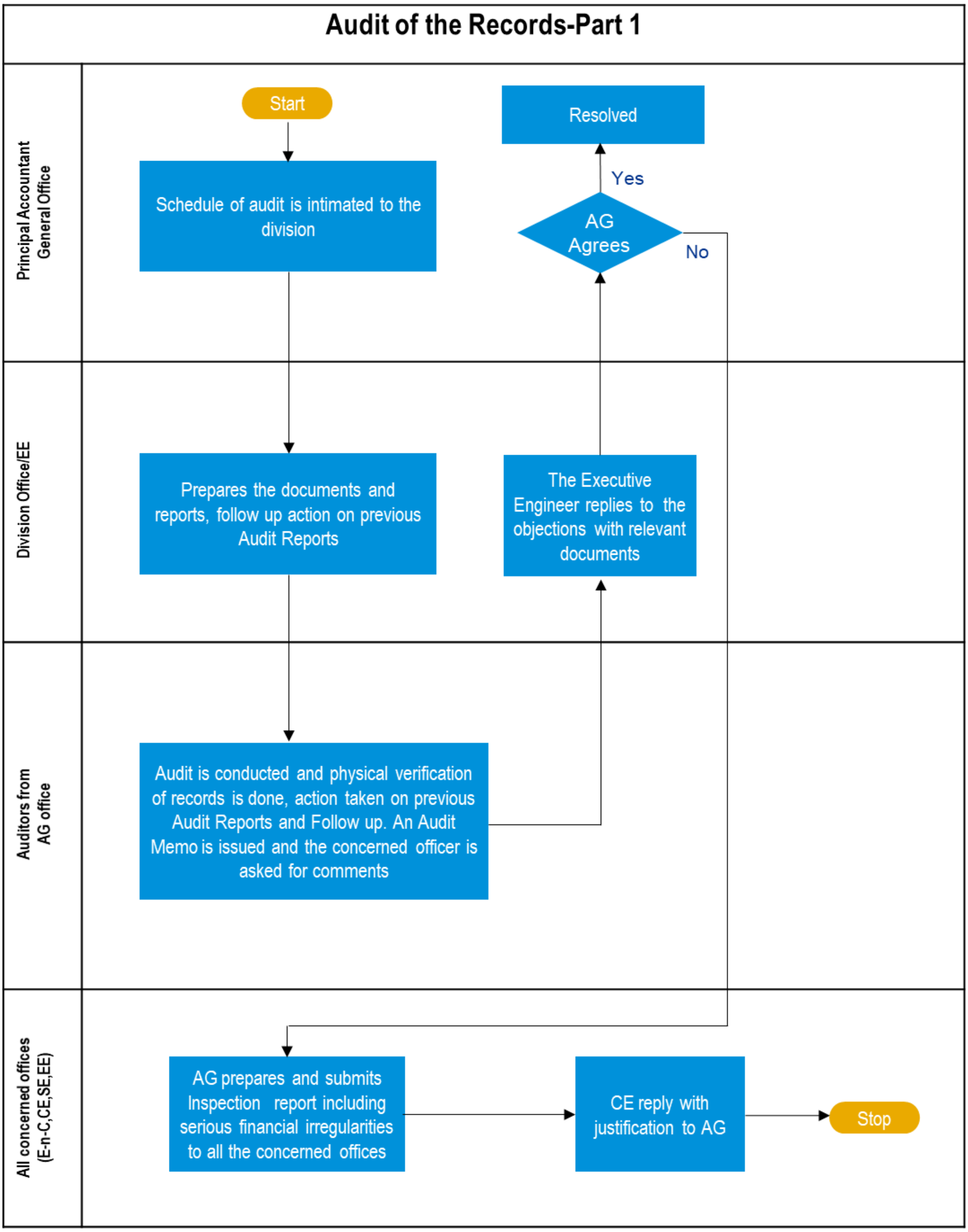
7.2.8 Release of funds for Periodic Maintenance Work

This process provides detailed understanding of the bills approval process ranging from bills submitted by the contractors, review and scrutiny done by the EE/CE to payments made to the contractors.



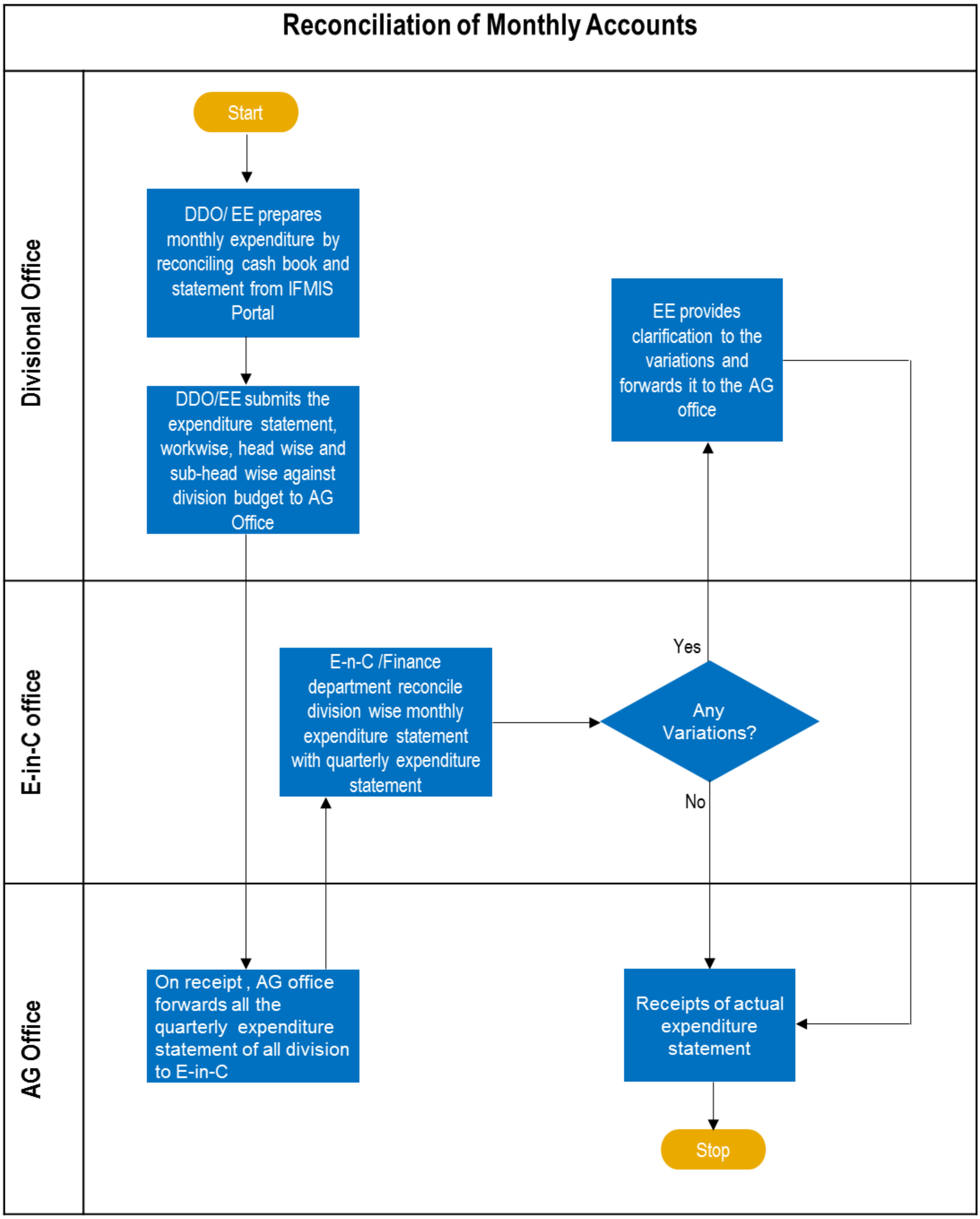
7.2.9 Audit of Records

This process provides a detailed understanding of Audit of records done by AG office. It also provides an overview of how discrepancies are discussed and resolved.



7.2.10 Reconciliation of Monthly Accounts

This process gives the detail understanding of monthly expenditure statement are prepared, verified and reconciled by divisional office, E-in-C office and AG office.

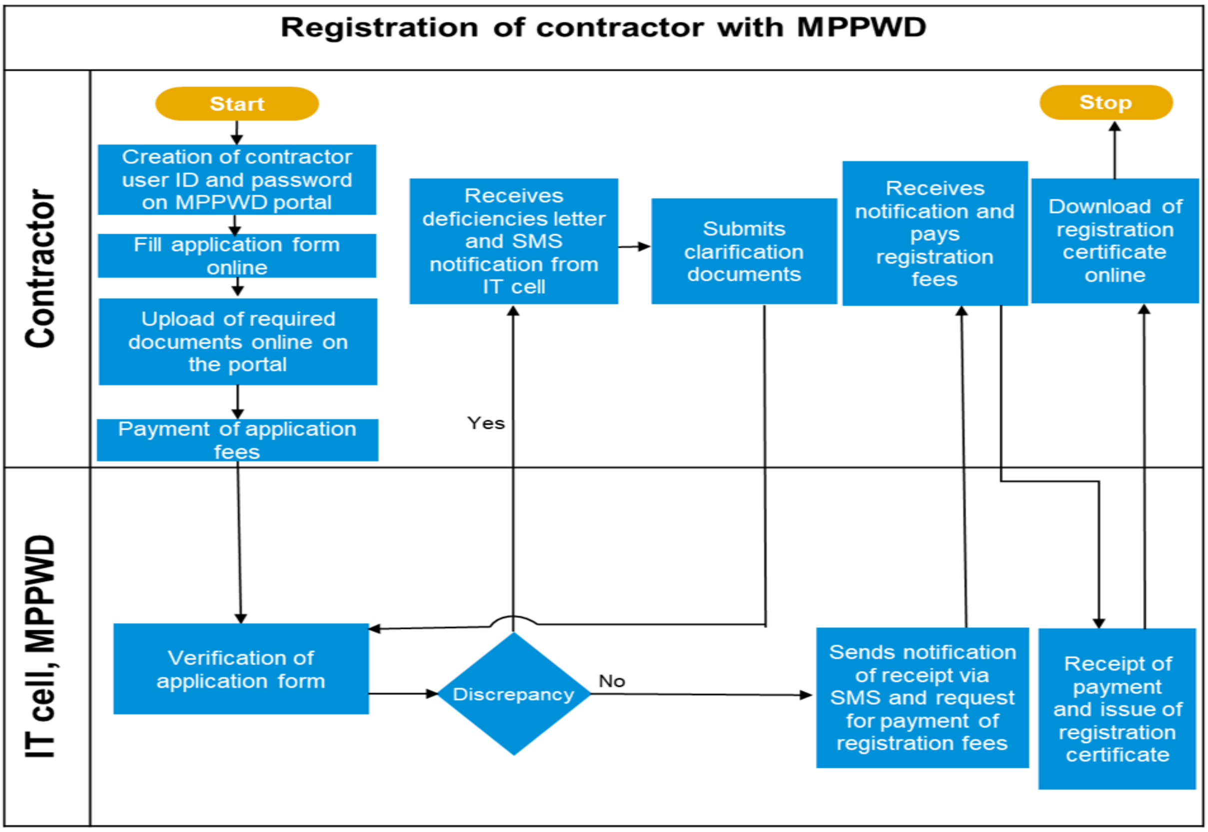


7.2.11 Contract Management

Contract management in MPPWD encompasses effective implementation of Government works contracts as per agreed quality, quantity, time & cost. Contract administration at MPPWD is supported by a State-level procurement portal developed by the National Informatics Centre (NIC). This module covers the processes of contracting ranging from contractor registration on the portal, bid submission, bid evaluation, contractor blacklisting to the return of performance guarantee, among others. While the contract agreements are signed at the division level between the Executive Engineer (EE) and the contractor, the headquarters acts as a supervisory authority. Though tendering is online, there are significant areas of transformation in the entire contract administration that can be achieved by adopting processes such as performance-based contracting, developing repository of contractors, and contract management practices that involve awarding work to the contractors with the best delivery track records.

7.2.12 Contractor registration process

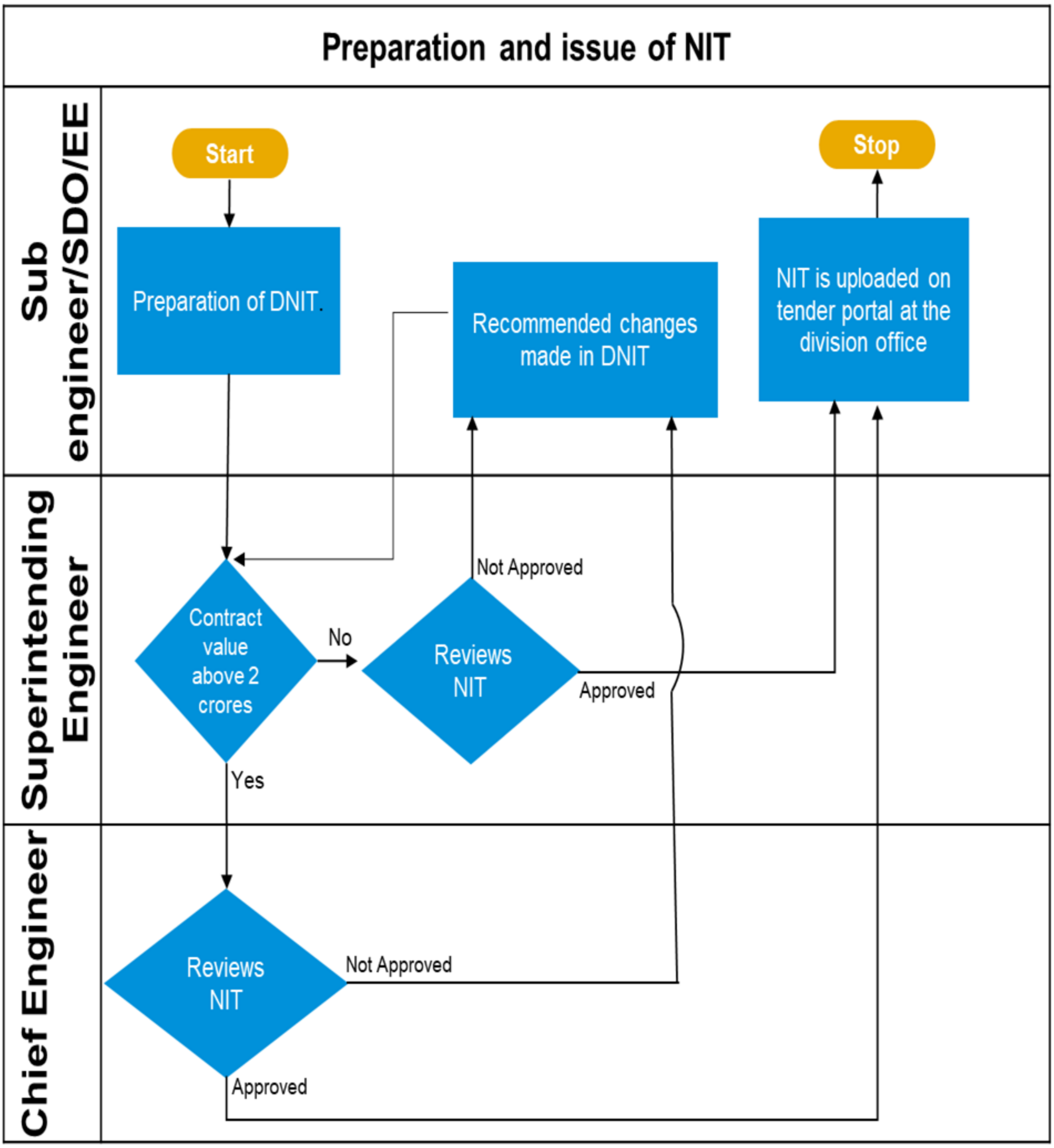
Every contractor needs to be registered with the department if he/she needs to be eligible to bid for a contract. The process includes payment of application fee, review of required documents and registration on the MPPWD portal after payment of registration fees. The contractors receive a certificate of registration as a proof of their registration.



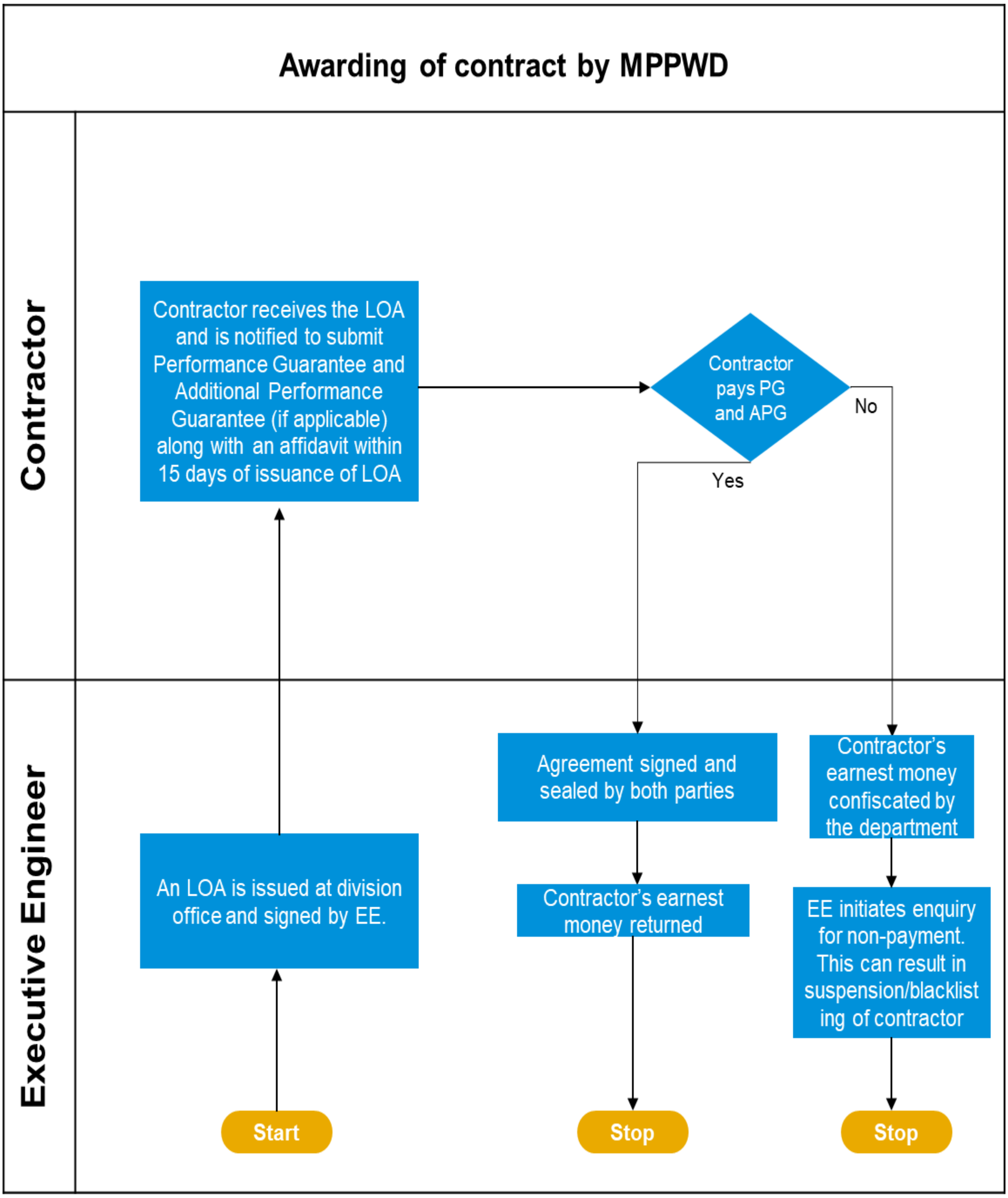
7.2.13 Preparation and issue of NIT

The department drafts the Notice Inviting Tenders at the division level which then goes through various levels of approval based on the tender value. All tenders are uploaded on a third -party portal (earlier E-proc, now NIC) where they can be accessed by the contractors.

7.2.14 Contract Award Process

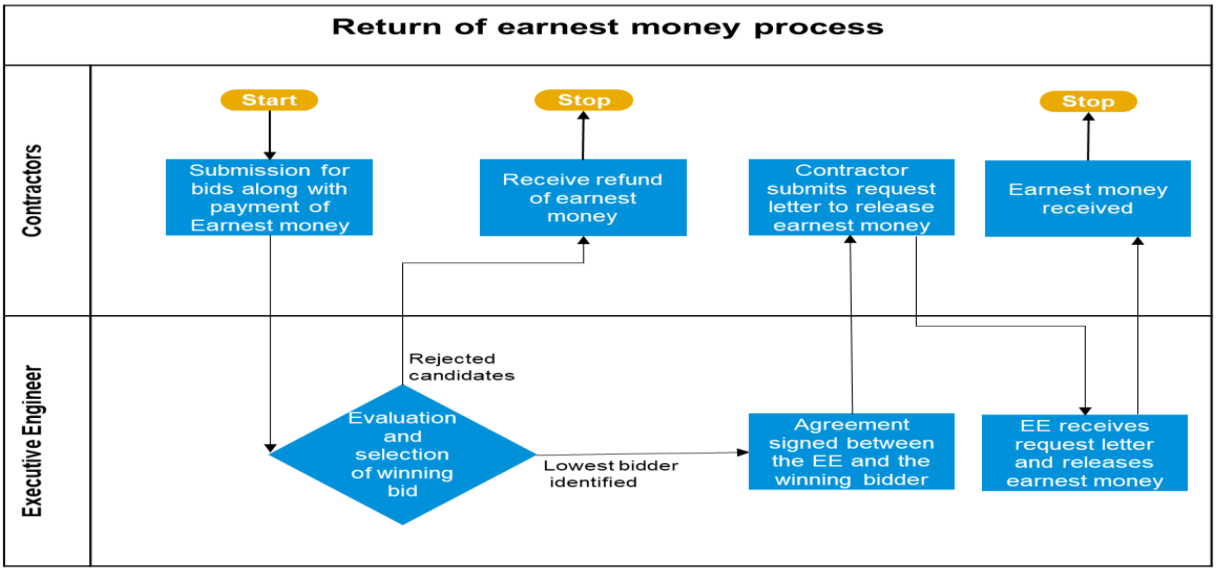


MPPWD awards the contract to the L1 bidder. This process also involves collection of performance guarantee from the winning bidder along with presenting him/her with the Letter of Acceptance for the project.



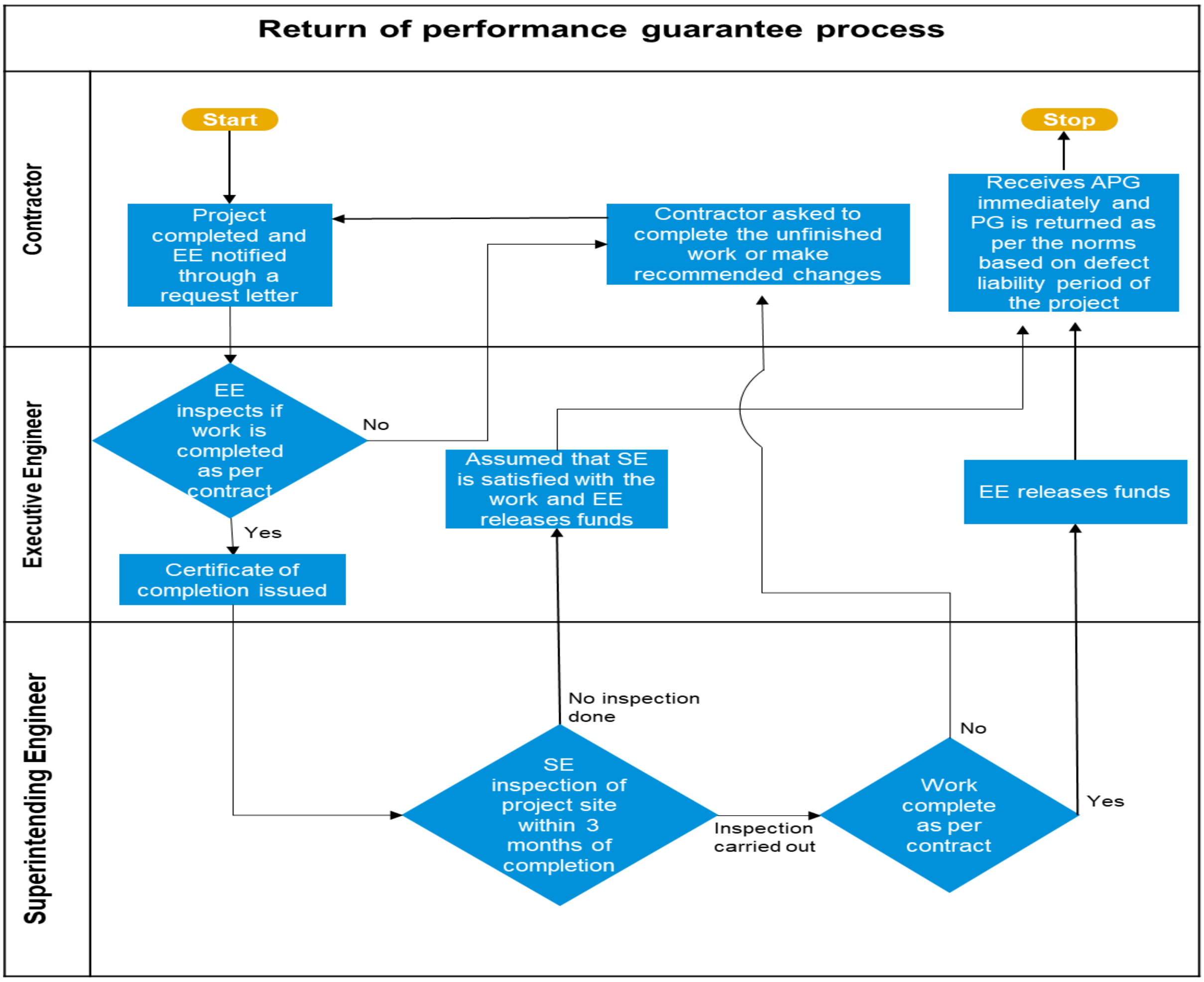
7.2.15 Return of earnest money

MPPWD collects earnest money from the contractors when they apply for tenders. The earnest money is returned to the contractors if they are rejected during the selection process. The contractor who wins the bid receives the earnest money after the agreement is signed with the department.



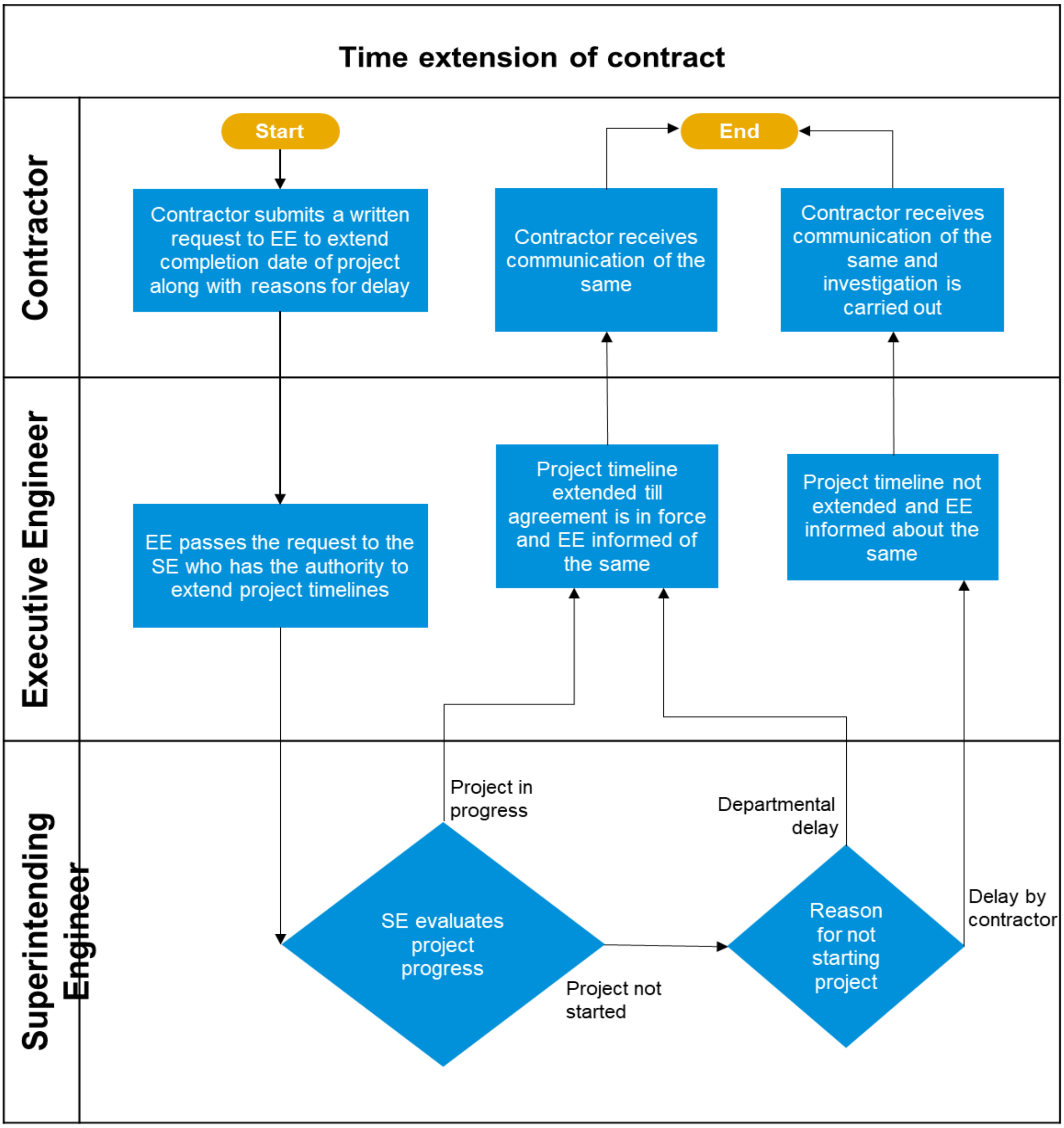
7.2.16 Return of Performance Guarantee

The contracts need to submit a certain amount (as defined in the department circulars) as performance guarantee after signing the agreement with the department. This amount is refunded as per the defect liability period of the contract. The additional performance guarantee is refunded immediately after the completion of the project on submission of the certificate of completion by the contractor.



7.2.17 Time Extension Process

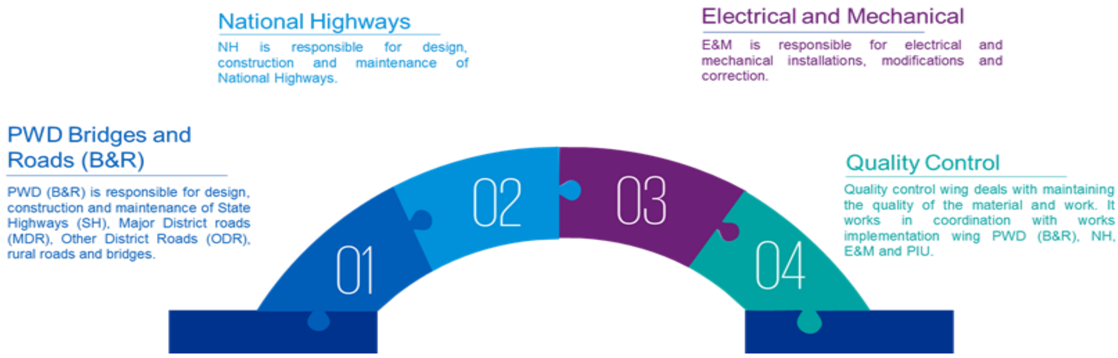
Contractors can apply for a time extension for their contract at MPPWD if there is a delay/expected delay in the execution of the project. This goes through a review by the Superintending Engineer to identify the reasons for delay. If the project has not started due to contractor delays, a thorough investigation is launched which can, at times result in the suspension or blacklisting of the contractor.



7.2.18 Works Execution

The work undertaken by MP PWD is broadly classified into two categories – Original works, and Repairs & Maintenance. Original works are further classified into major, minor and petty works based on the cost of the work. Original work above Rs.100,000 is classified as major work, above Rs.10,000 and below Rs.100,000 is minor work, and below Rs.10,000 is petty work. Repairs and maintenance can be classified into annual repair, ordinary repair and special repair. Annual repair includes renewals of and petty repairs to the road surface, petty repairs to bridges, maintenance of rest houses, black topping on existing W.B.M. roads, widening and strengthening crest and widening bridges/culverts and minor improvement of geometrics. Ordinary repair is routine repair performed for buildings such as oiling, greasing of doors and windows, monsoon repairs to buildings, attention to drains, water and electrical fixtures. Any other repair which is not included in annual repair or ordinary repair is included in special repair.

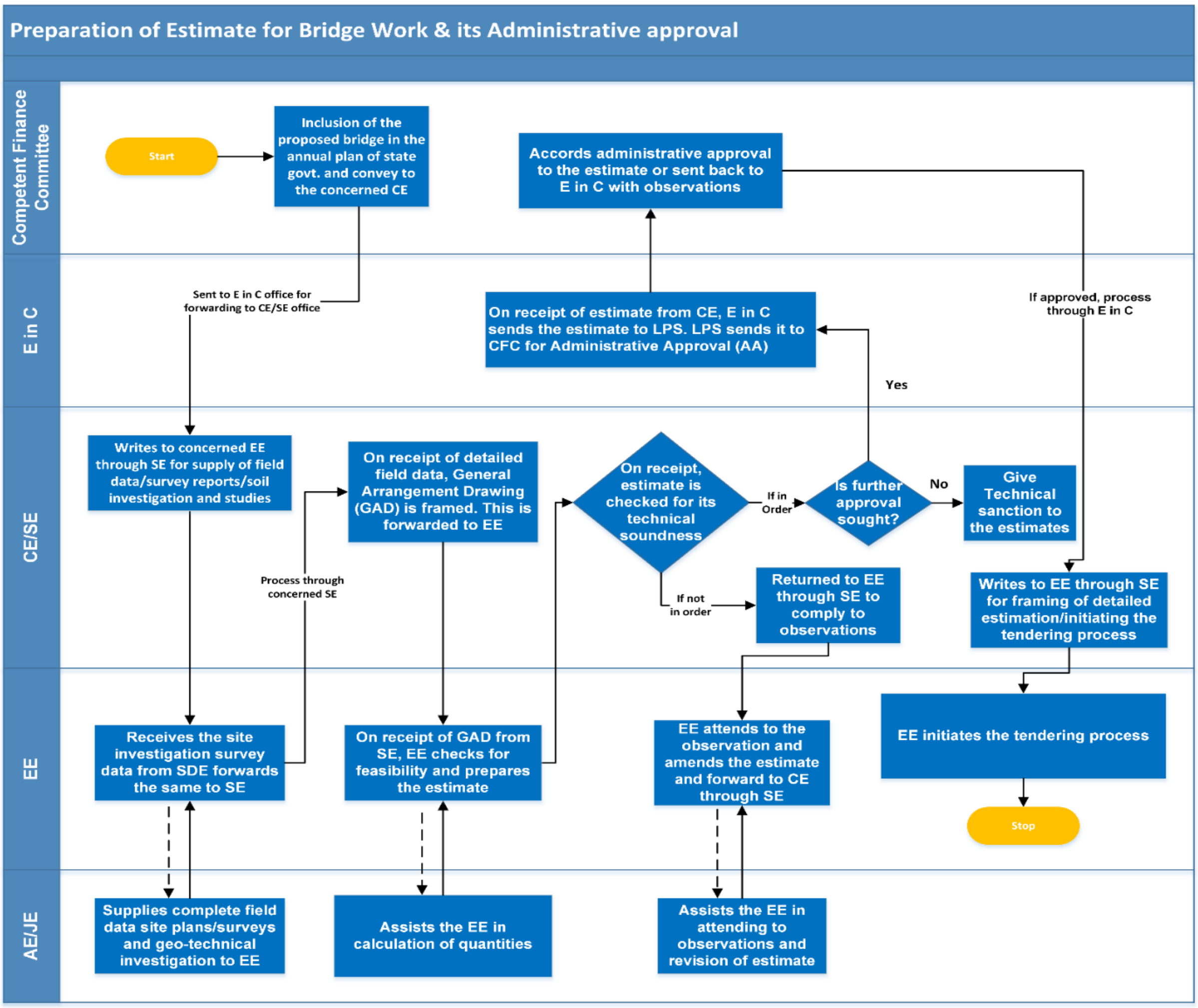
PWD performs various functions such as construction and maintenance of bridges and roads, national highways, electrical and mechanical works, quality testing and control of the works. These works are undertaken by specific entities in PWD which are as follows:



A typical construction work cycle includes preparation of proposal, estimation, tender documents and acceptance of tenders, execution of work onsite in terms of recording measurements, contractor billing, verification and payments. It also includes exercising various checks including quality control/ quality assurance, completion of works and maintaining newly created assets Preliminary challenges in this section have been mainly in land acquisition in tribal and forest areas, large number of court cases, and inadequate turnaround time for preparing Detail Project Reports (DPR). At times, the Department experiences pressure from public stakeholders resulting sometimes in re-working of the project. The detailed processes along with issues and challenges have been identified in this chapter.

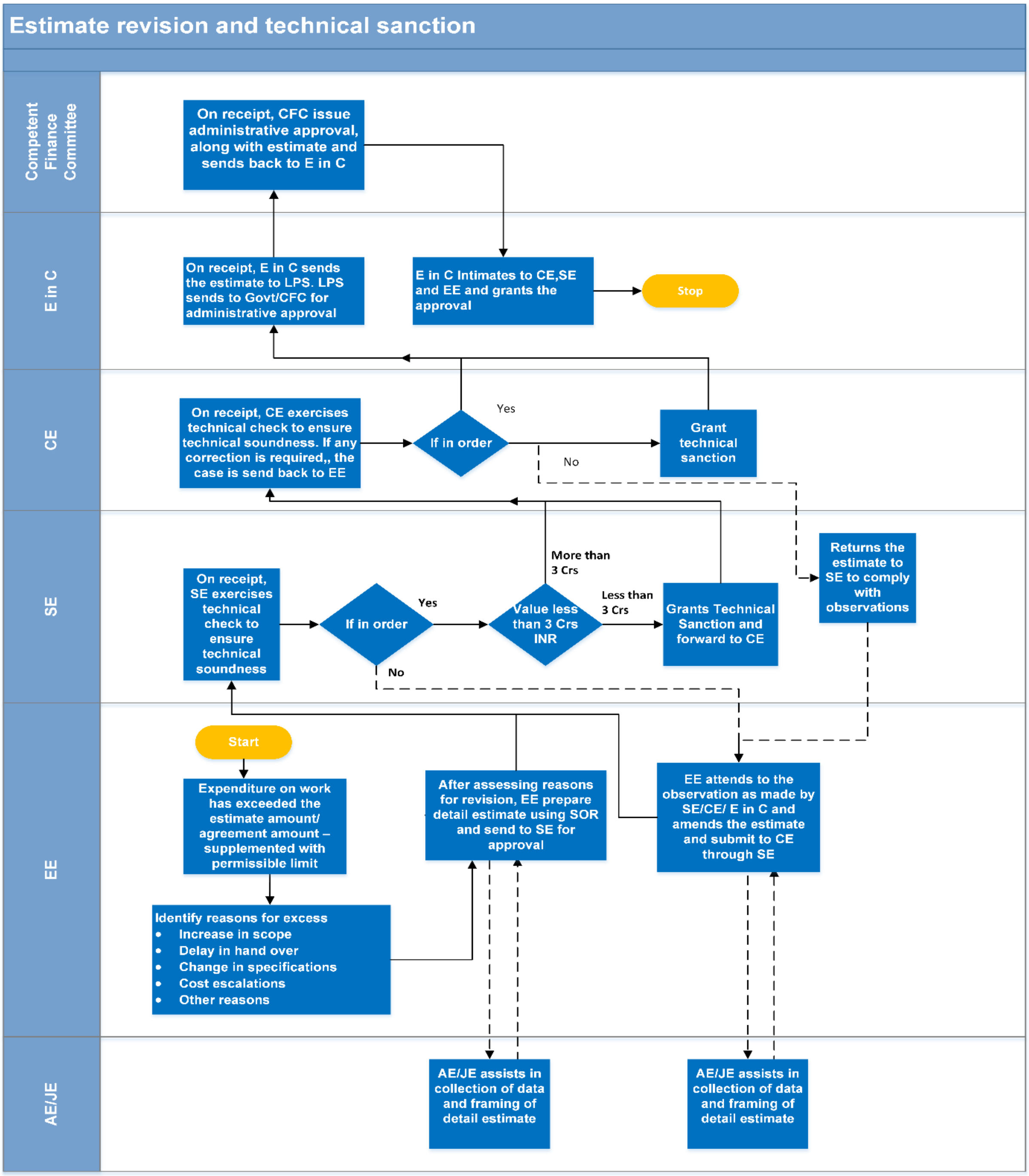
7.2.19 Estimate Preparation, Technical Sanction and Administrative Approval

This process provides detailed understanding of preparation of estimate and technical sanction for bridge work.



7.2.20 Estimate Revision and Its Approval

This process provides detailed understanding of preparation of detail estimates and technical sanction for Road works.



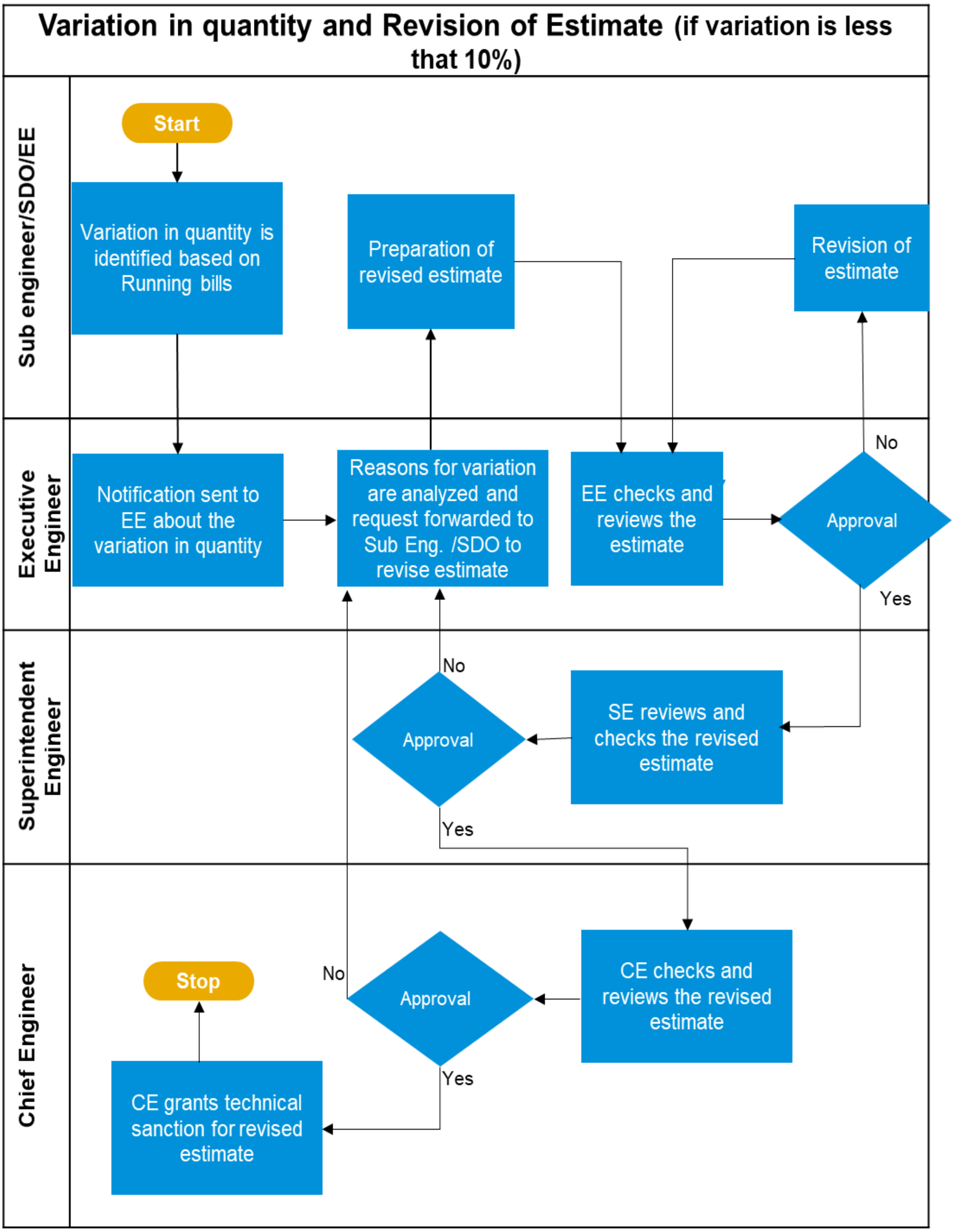
CFC (Competent Finance Committee) includes-SFC/EFC/PSC

LPS-(Lagat Parikshan Samiti)

Process Correction

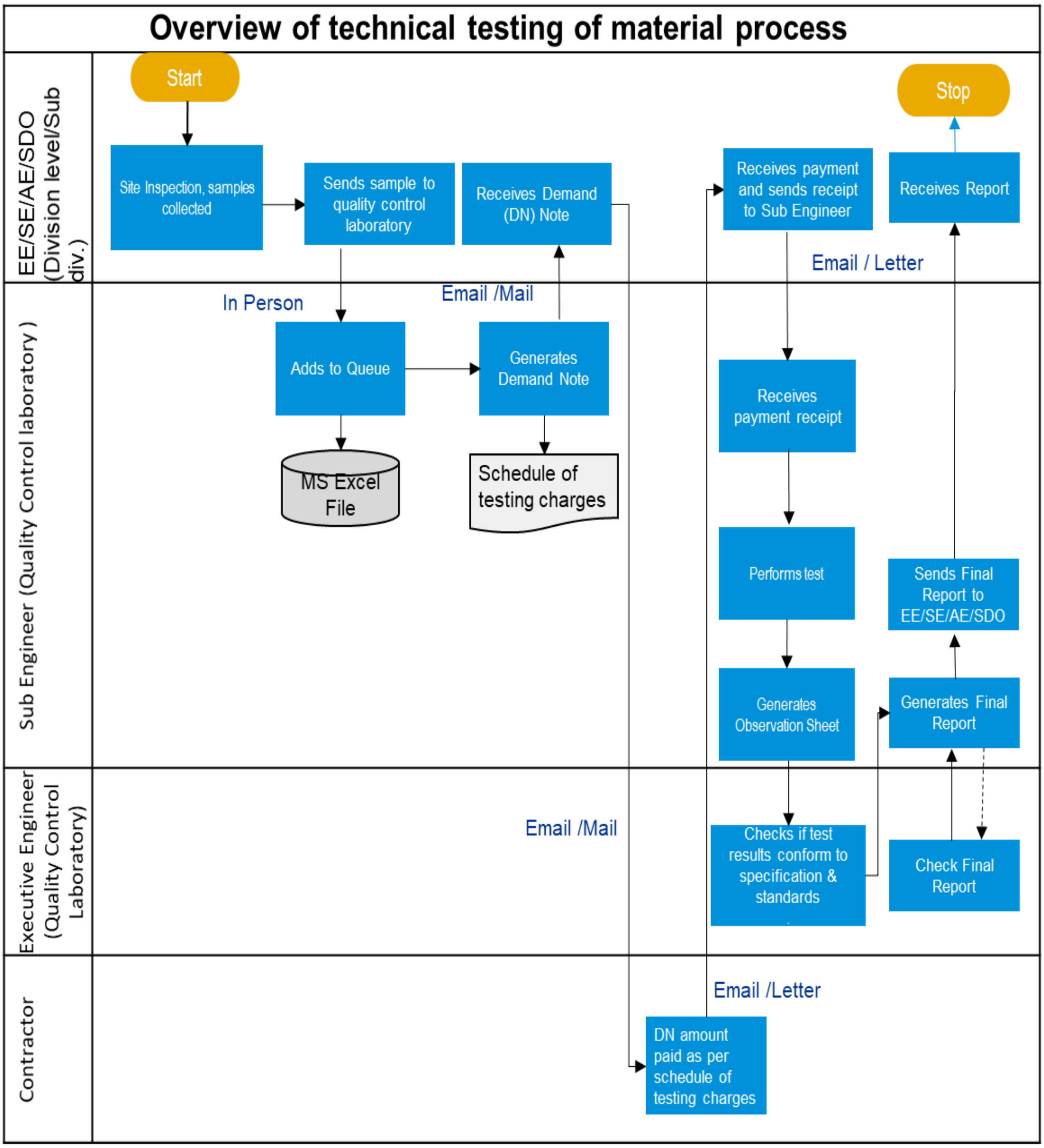
7.2.21 Variation in Quantity and Estimate Revision

This process provides a detailed understanding of getting approval from competent authority when variation in quantity is identified and estimate revision is needed.



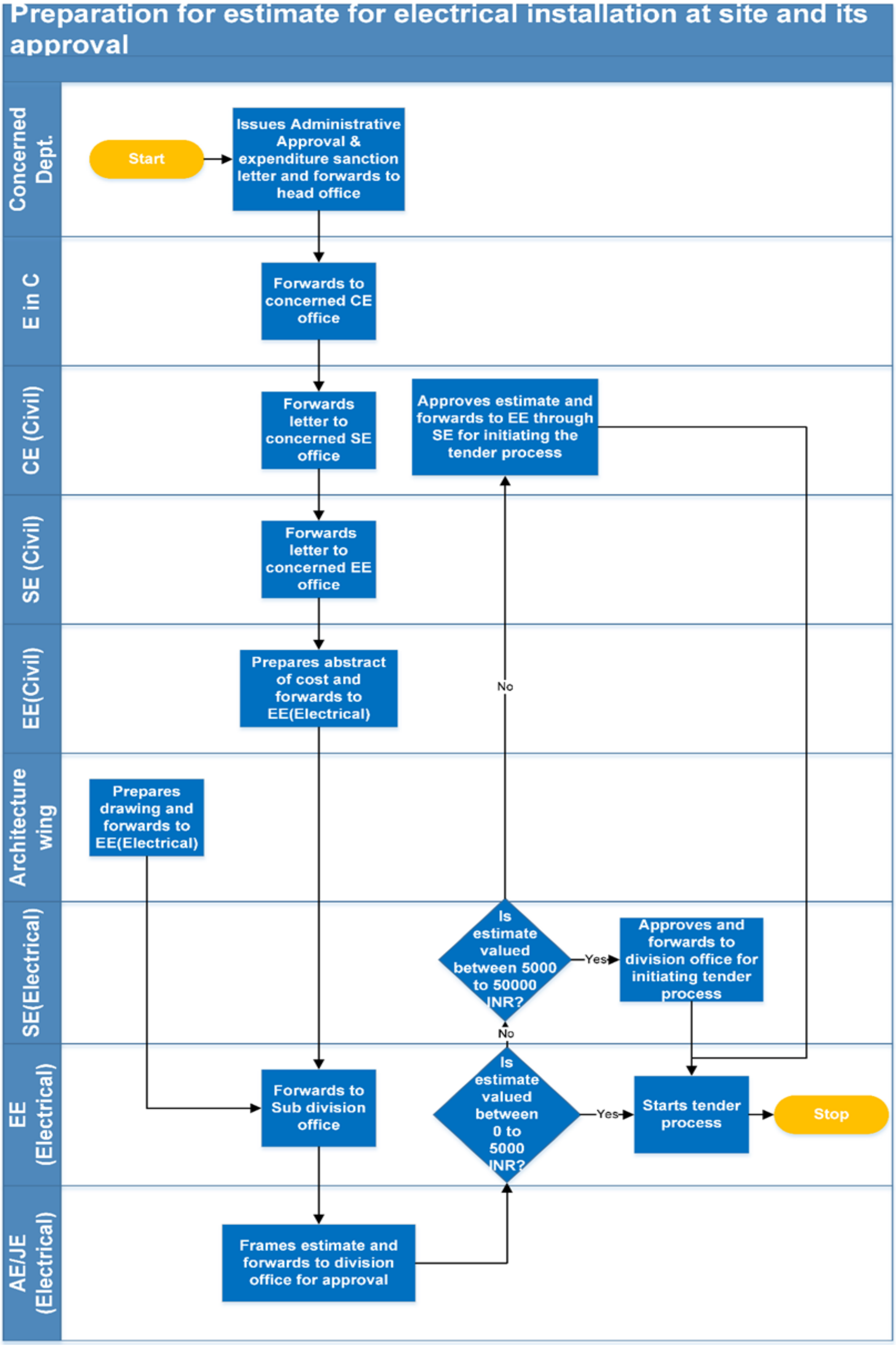
7.2.22 Technical Testing of Material

EE sends a sample to quality control wing which monitors, manages and ensures quality assurance along with the entire execution of work



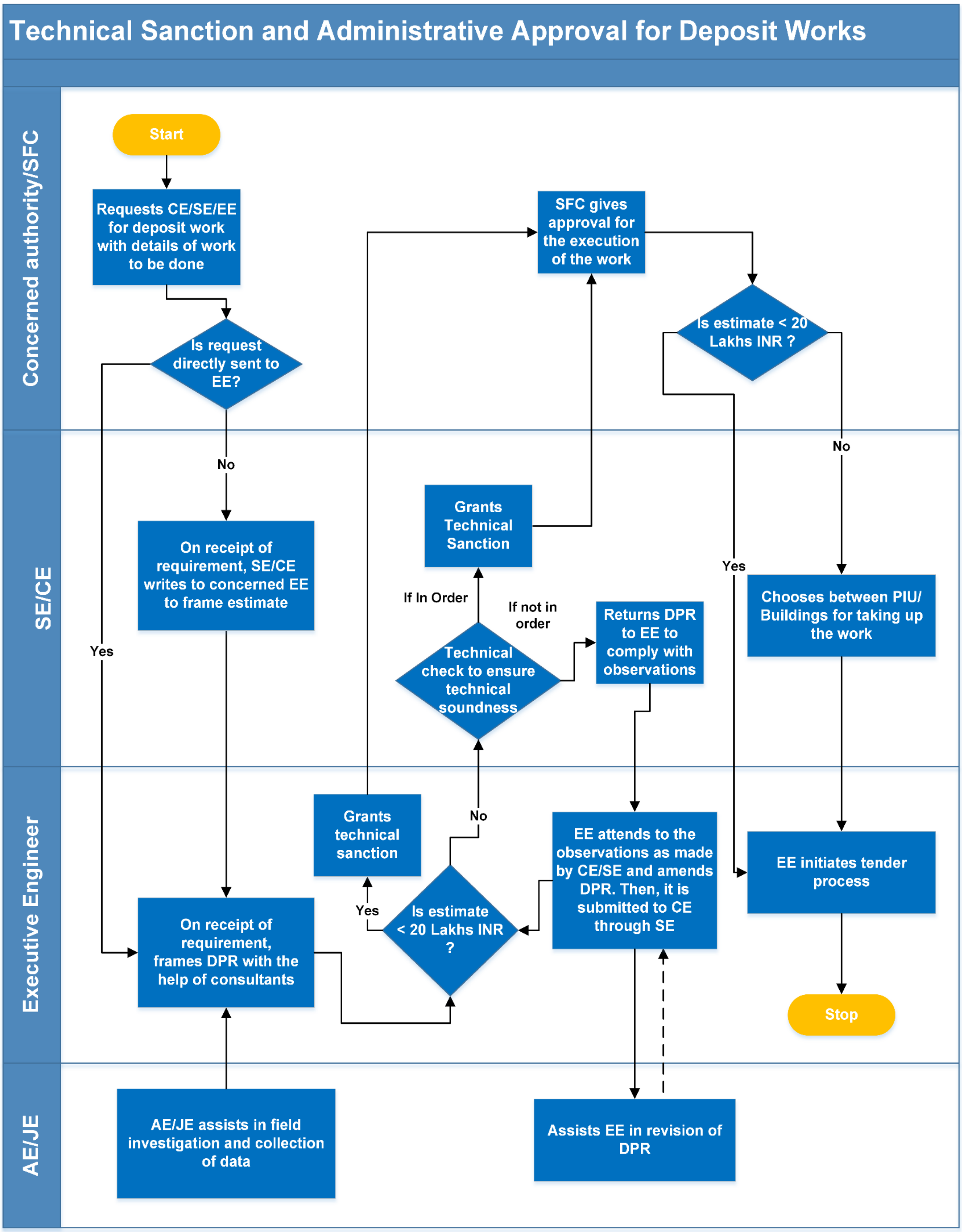
7.2.23 Preparation of Estimate for Electrical Installation at Site

This process provides a detailed understanding of preparation of estimate and technical sanction for bridge work.


Preparation for estimate for electrical installation at site and its approval
Concerned Dept.
E in C
CE (Civil)
SE (Civil)
EE(Civil)
Architecture wing
SE(Electrical)
EE (Electrical)
AE/JE (Electrical)
Start
Issues Administrative Approval & expenditure sanction letter and forwards to head office
Forwards to concerned CE office
Forwards letter to concerned SE office
Approves estimate and forwards to EE through SE for initiating the tender process
Forwards letter to concerned EE office
Prepares abstract of cost and forwards to EE(Electrical)
No
Prepares drawing and forwards to EE(Electrical)
Is estimate valued between 5000 to 50000 INR?
Yes
Approves and forwards to division office for initiating tender process
No
Forwards to Sub division office
Is estimate valued between 0 to 5000 INR?
Yes
Starts tender process
Stop
Frames estimate and forwards to division office for approval

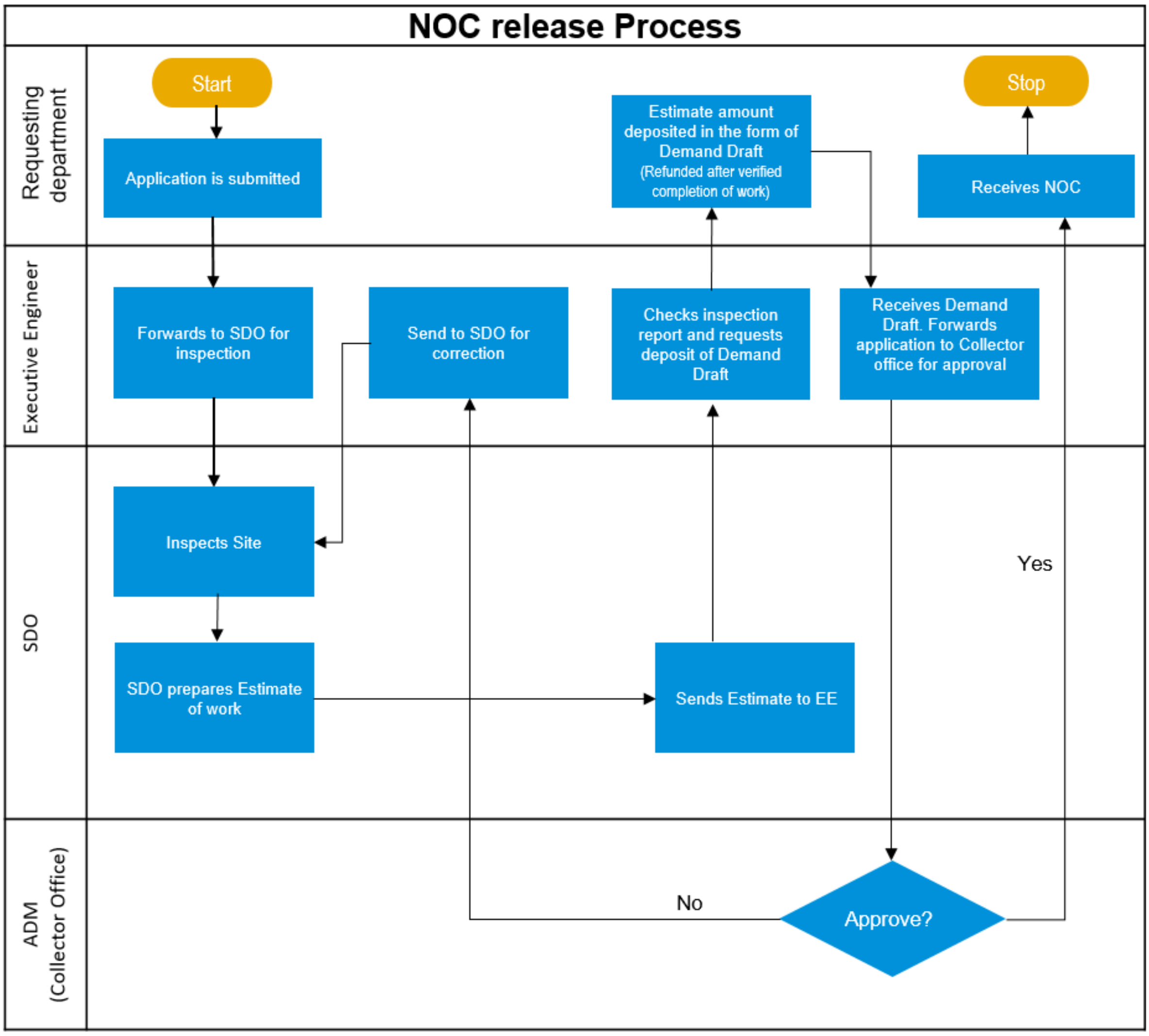
7.2.24 Technical Sanction and Administrative Approval for Deposit Works

This process gives detail understanding of preparation of detailed estimate and technical sanction for Road works.



7.2.25 Issue of No Objection Certificate (NOC) for Bridges and Roads

NOC document is issued for any construction work to be conducted by a contractor. The contractor is allowed to initiate activities only after a NOC has been issued by the Collectors office.



7.2.26 Asset Management

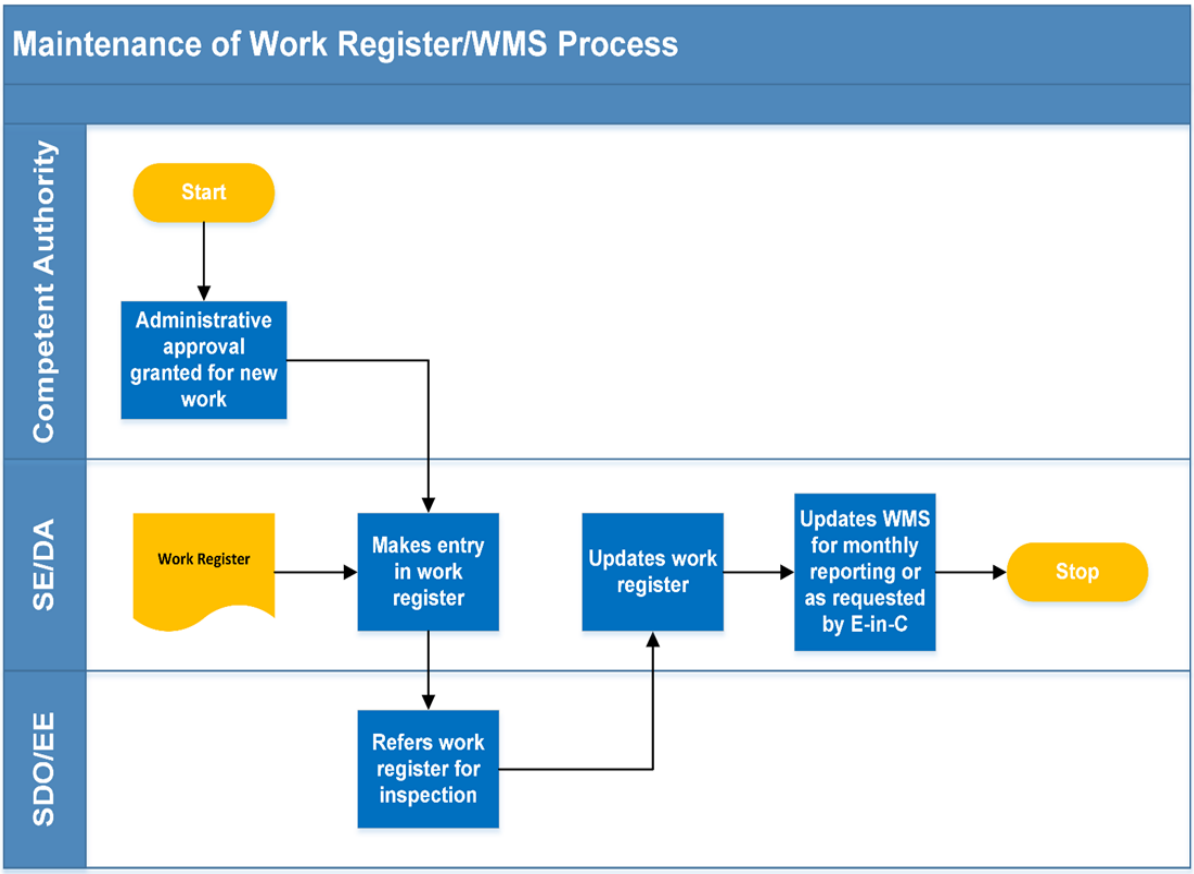
The roads, bridges and buildings constructed by PWD are community assets and require regular maintenance. The 'Asset Management' module embraces all processes, tools, data and policies necessary to achieve the goal of effectively managing assets. The As-Is study mapped the current practices of asset management in MPPWD which is based on manual system of asset register. Given the absence of a modern GIS-based online Asset Management System in MPPWD, the development of such a system would be an important transformation. The proposed system would provide the administration with consistent system-wide data, enabling the allocation of available funds across competing pavement, structure and other infrastructure needs.

7.2.27 Maintenance of Work Register

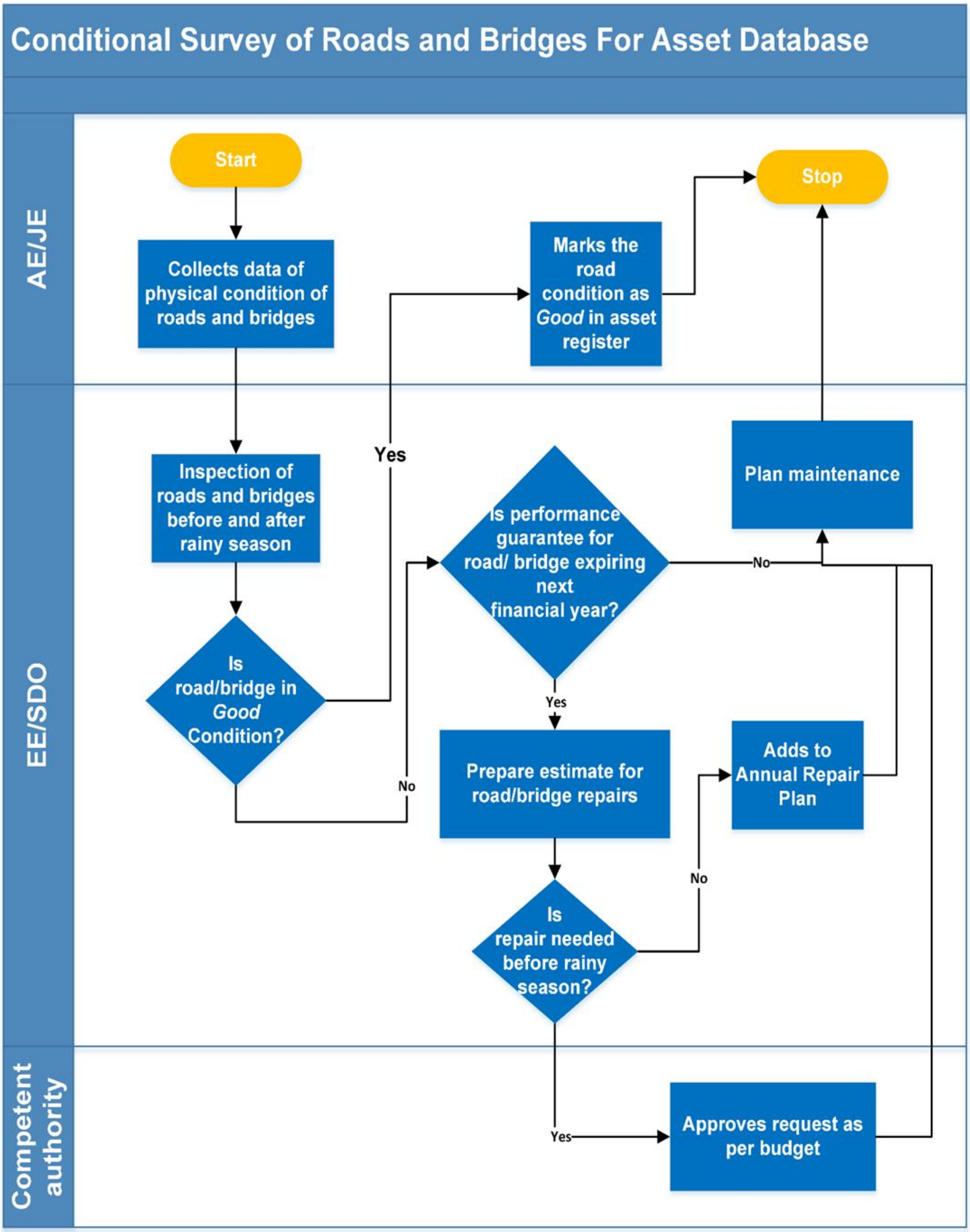
Execution of work in PWD starts after Administrative Approval (AA) by competent authority. After AA is provided, work details are added to the work register for roads, bridges and buildings. In case of roads and bridges, same details are added to the Work Management System (WMS) as well.

7.2.28 Conditional Survey of Roads & Bridges for Asset Database

Junior Engineer will perform the survey for Roads and Bridges to capture their condition



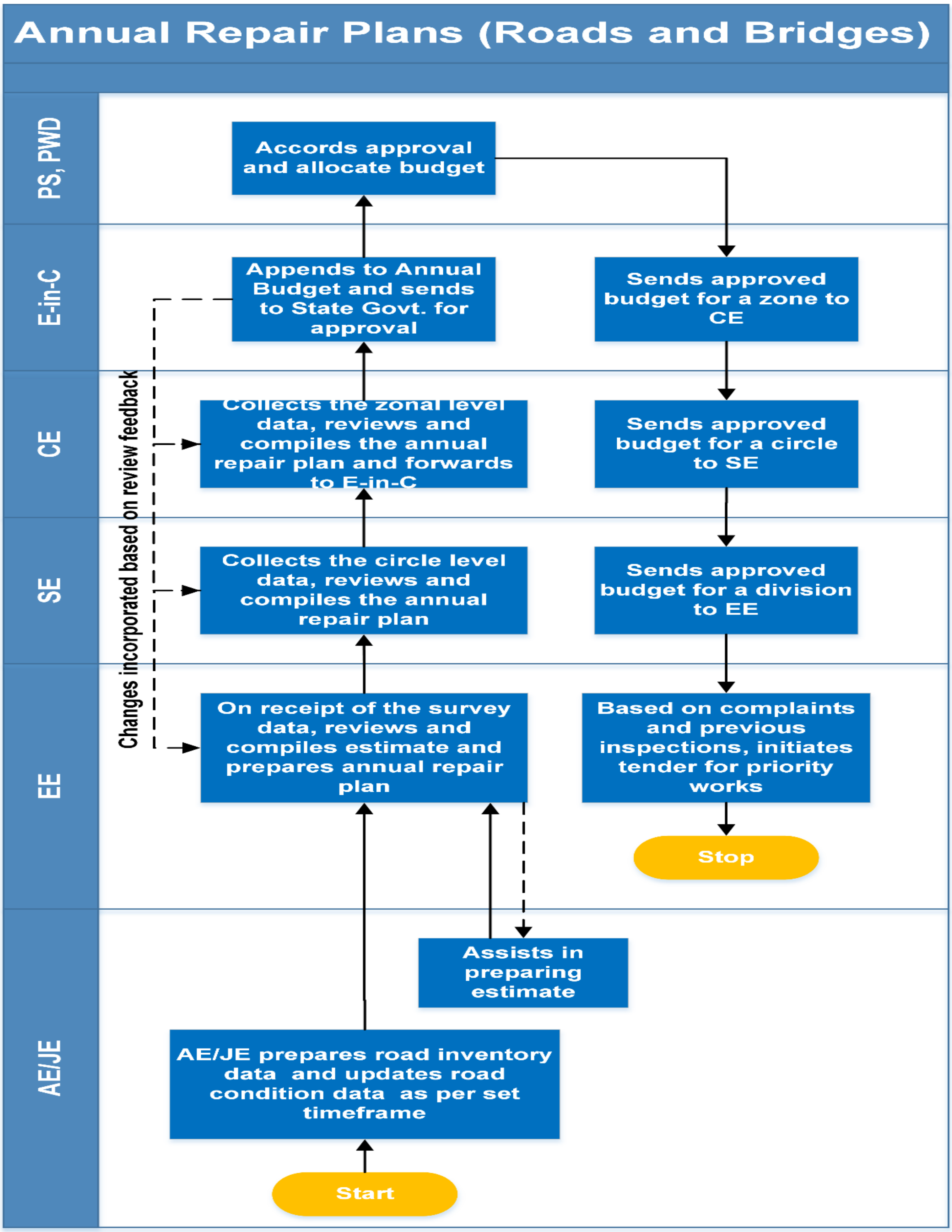
before and after every rainy season. Based on condition and performance guarantee status, they are marked for annual repair plan and maintenance is planned



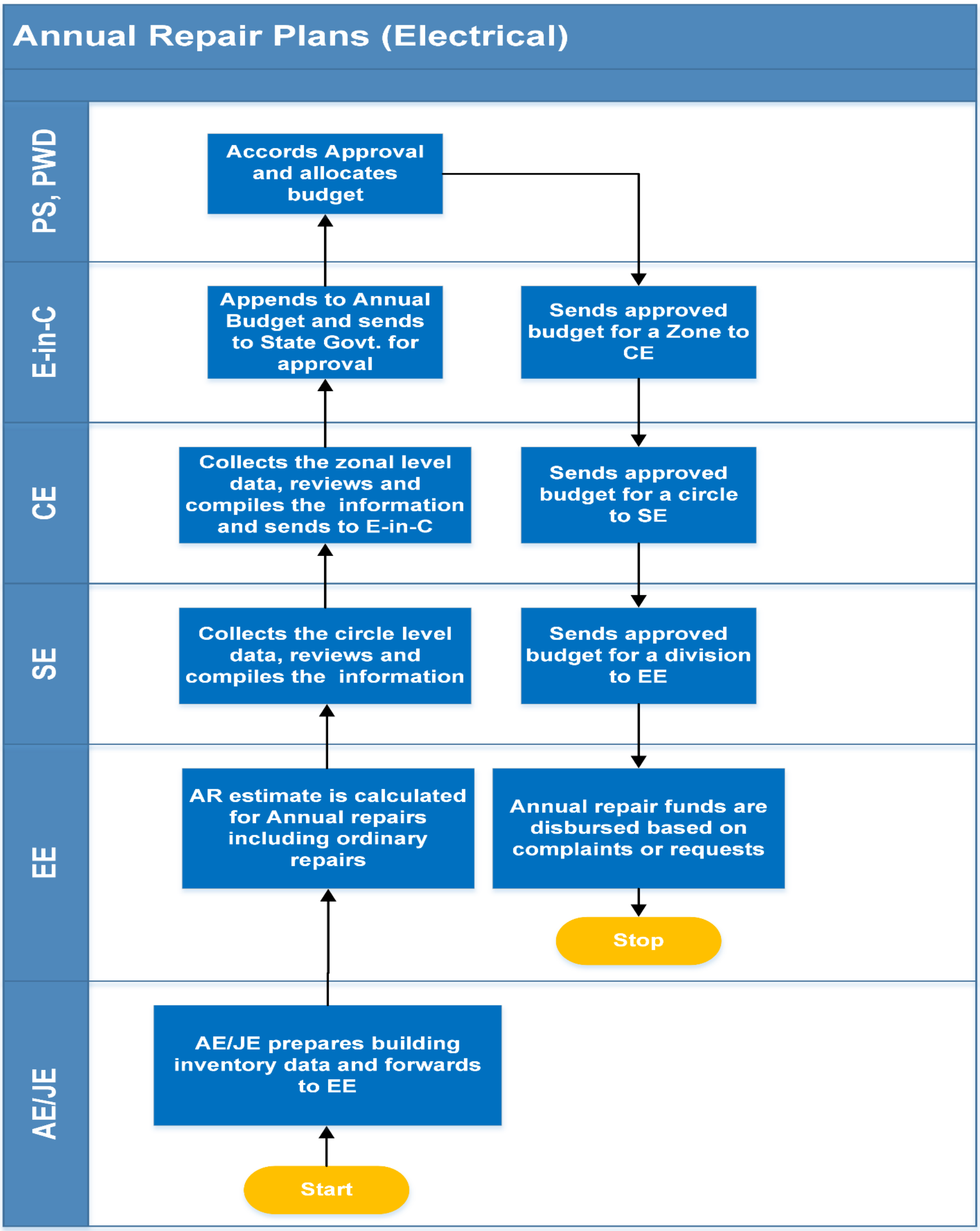
7.2.29 Annual Repair Plan (Roads and Bridges)

MP PWD prepares Annual Repair Plan to carry out works like renewals, petty repairs to the road surface and petty repairs to bridges operations undertaken to restore gaps in existing road side avenues.

7.2.30 Annual Repair Plans (Buildings and Electrical)

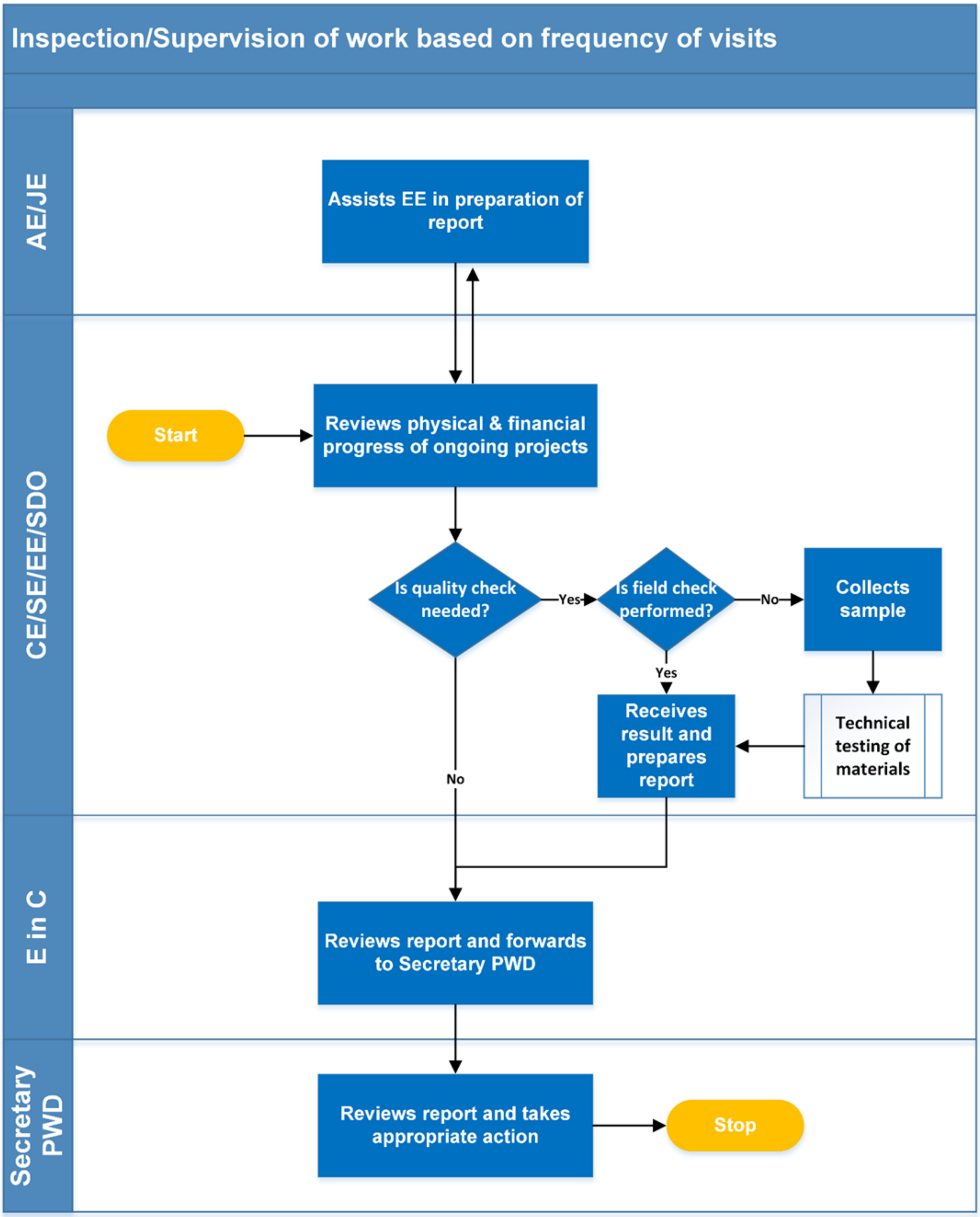


MP PWD prepares Annual Repair Plan for buildings and electrical work to carry out periodical repairs like internal/external, white or color washing, plastic emulsion paint, external or internal painting, internal distempering etc.



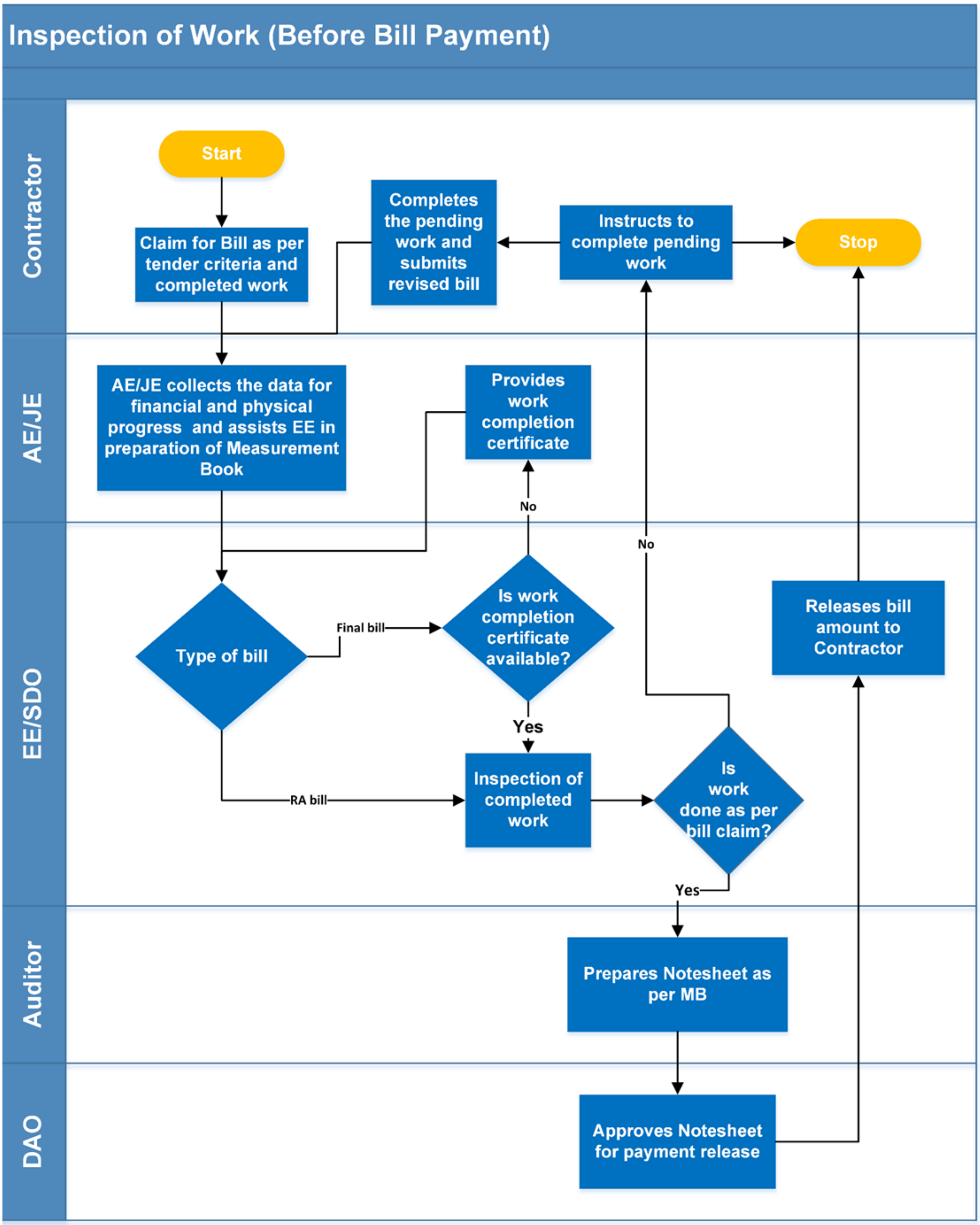
7.2.31 Inspection or supervision of works

S.D.O, EE, SE and CE undertake timely checks to gain familiarity with prevailing conditions and quality of work presently under progress



7.2.32 Inspection of Work before Bill Payment

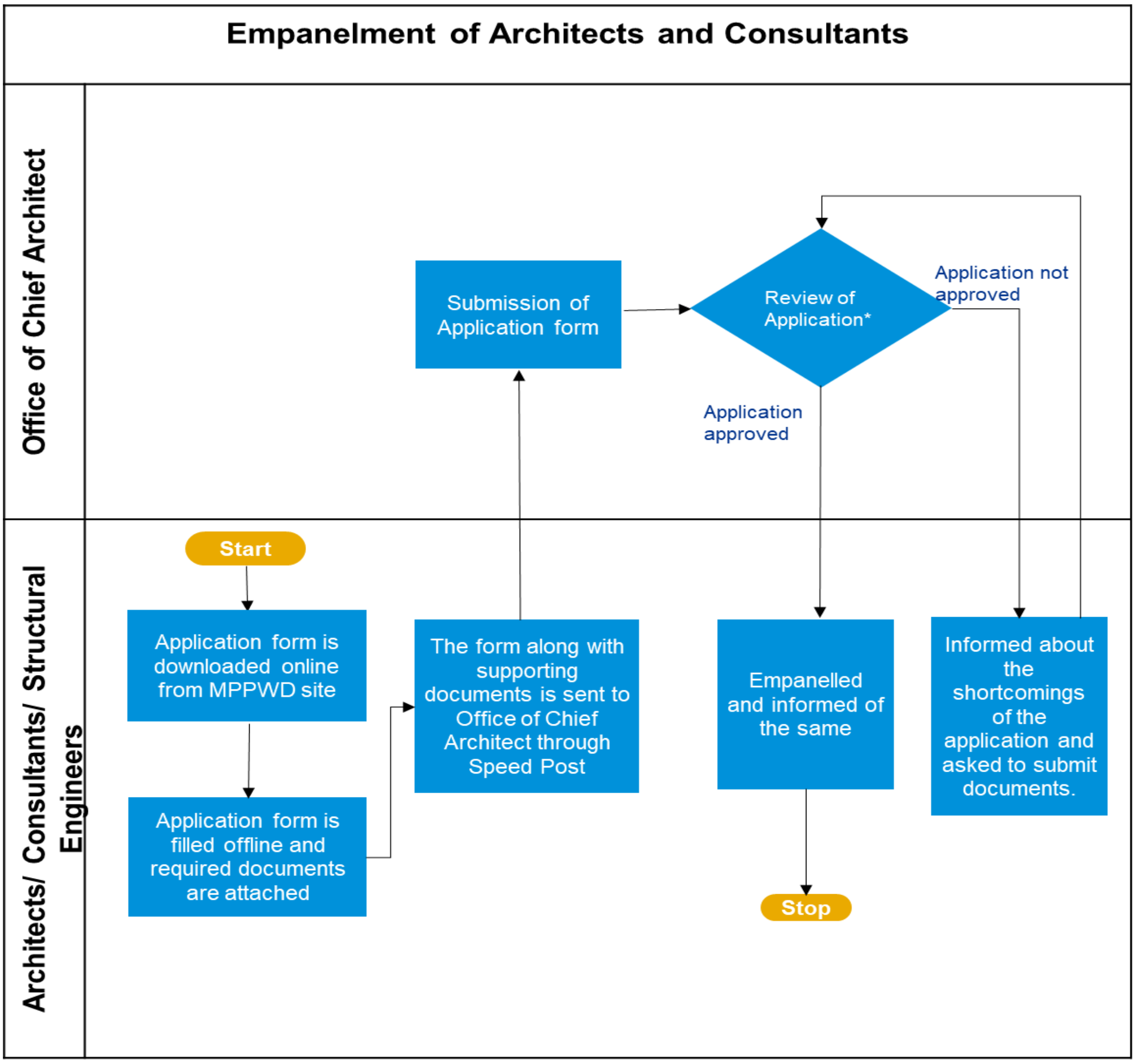
Sub Engineer performs inspection to check the physical progress of work when contractor submits the bill for payment. If work is not as per bill claim, contractor is directed to complete pending work before bill payment.



7.3 MPPWD (BUILDINGS)

7.3.1 Empanelment of Architect

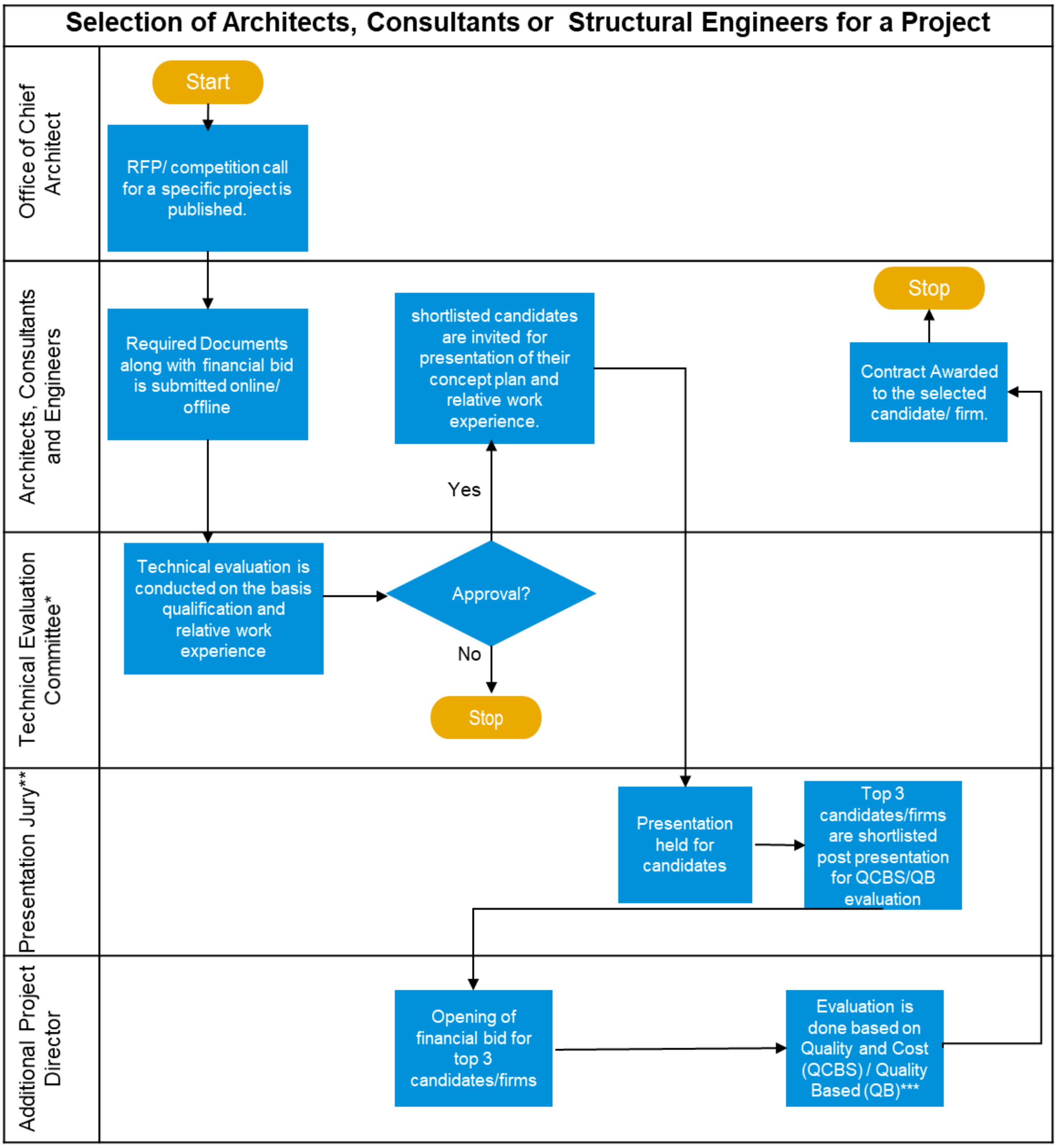
PIU empanels Architects, Consultants, and Structural Engineers for various purposes including structural design, comprehensive architectural drawings, interior design and project management consultancy. This process captures the procedure of empanelment of architects, consultants, structural engineers and all consultancy services with PIU.



*A committee is formed by Chief Architect to review the applications for empanelment.

7.3.2 Selection of Architects, Consultants and/or Structural Engineers for a Project

PIU selects architects, consultants and structural engineers for various design and drawing purposes. This process captures the procedure of selecting architect, consultant and structural engineer for structural design, comprehensive architectural drawing and project management consultancy through QCBS/ QB evaluation.



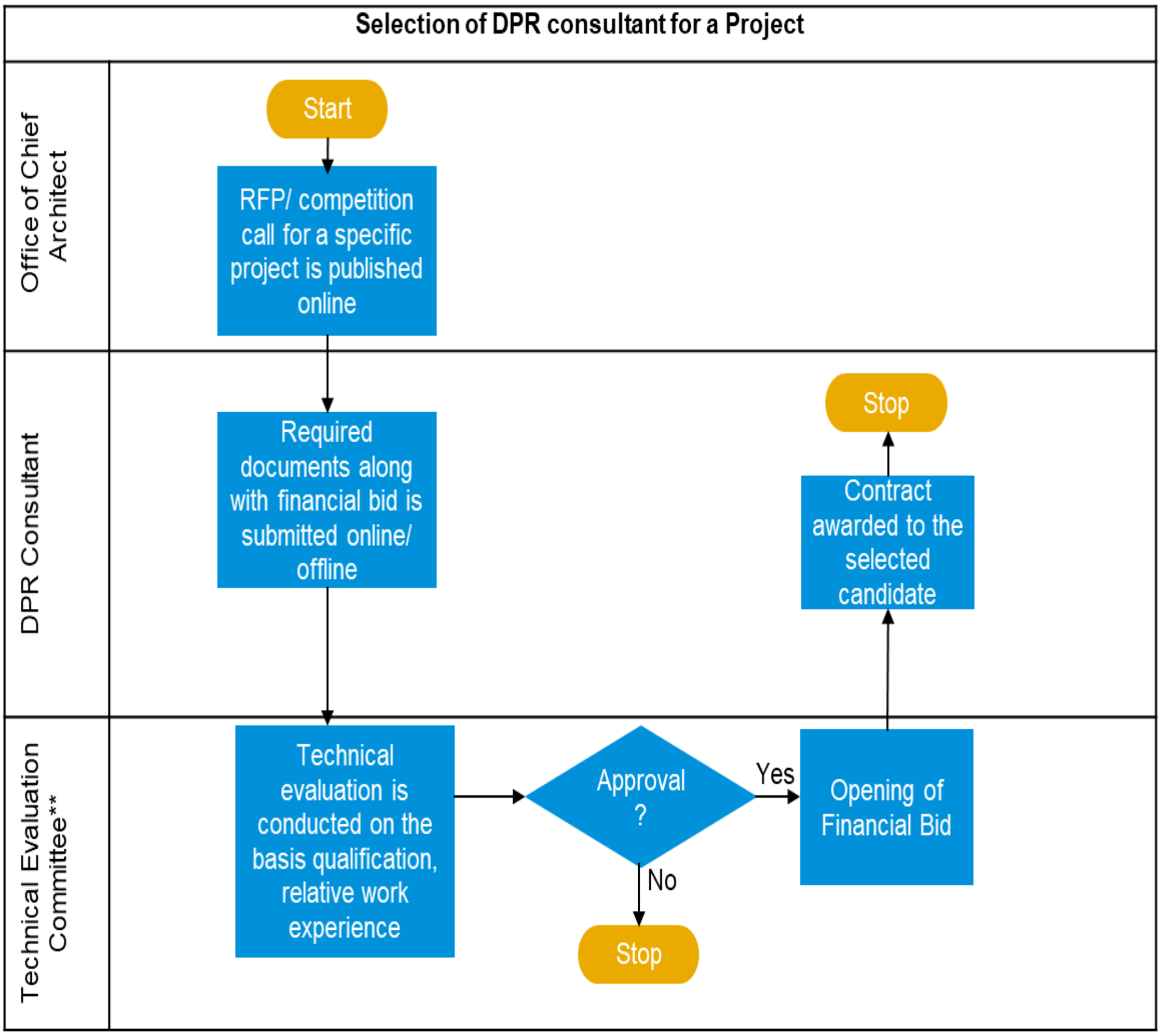
* Technical Evaluation Committee comprises of Chief Architect, Project Director, Assistant Project Director and Competent authority from concerned department

** Presentation jury comprises of Chief Architect, Project Director, Assistant Project Director, Divisional Project Engineer and Competent authority from concerned department

*** Evaluation of Architects, Consultants or Engineers for Designing and PMC are carried out by Quality and Cost Based System (QCBS). However, architectural appointments for comprehensive designing is carried out by Quality Based (QB) system.

7.3.3 Selection of DPR consultant for a Project

PIU selects DPR consultants for preparation of detailed project report. This process captures the procedure of selection of DPR consultant by identification of lowest bidder.

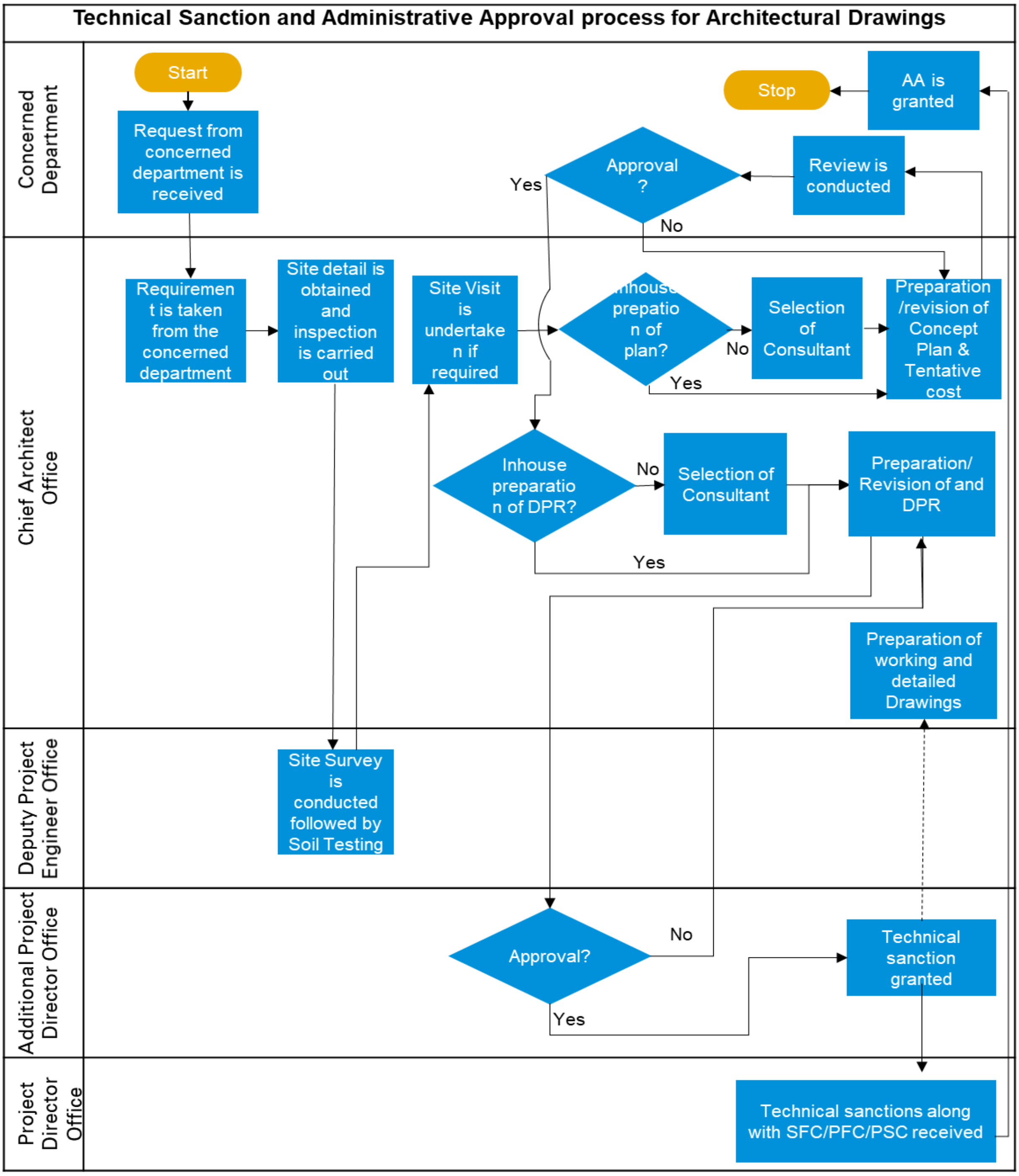


* RFP – Request for Proposal

** Technical Evaluation Committee comprises of Chief Architect, Project Director, Assistant Project Director and Competent authority from concerned department

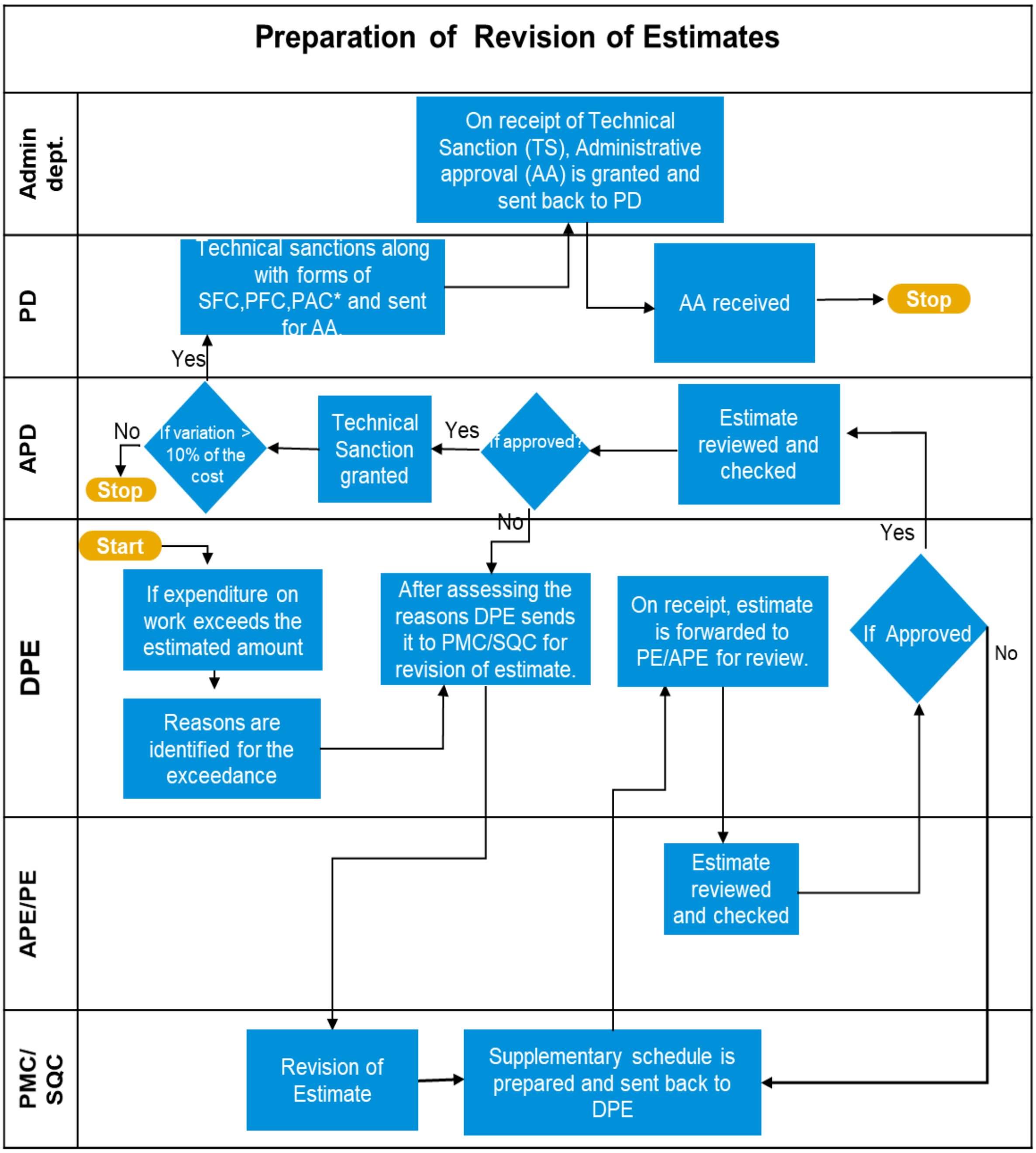
7.3.4 Technical Sanction and Administrative Approval process -Architectural Drawings

PIU receives requests for designing, building, retrofitting etc. of various building works from various government departments. After receipt of requests, office of chief architect initiates the procedure to prepare DPR, working drawings, detailed drawings, and forwards it to the concerned authority for TS and AA. This process captures the lifecycle for grant of TS and AA.



7.3.5 Preparation of Revised Estimate

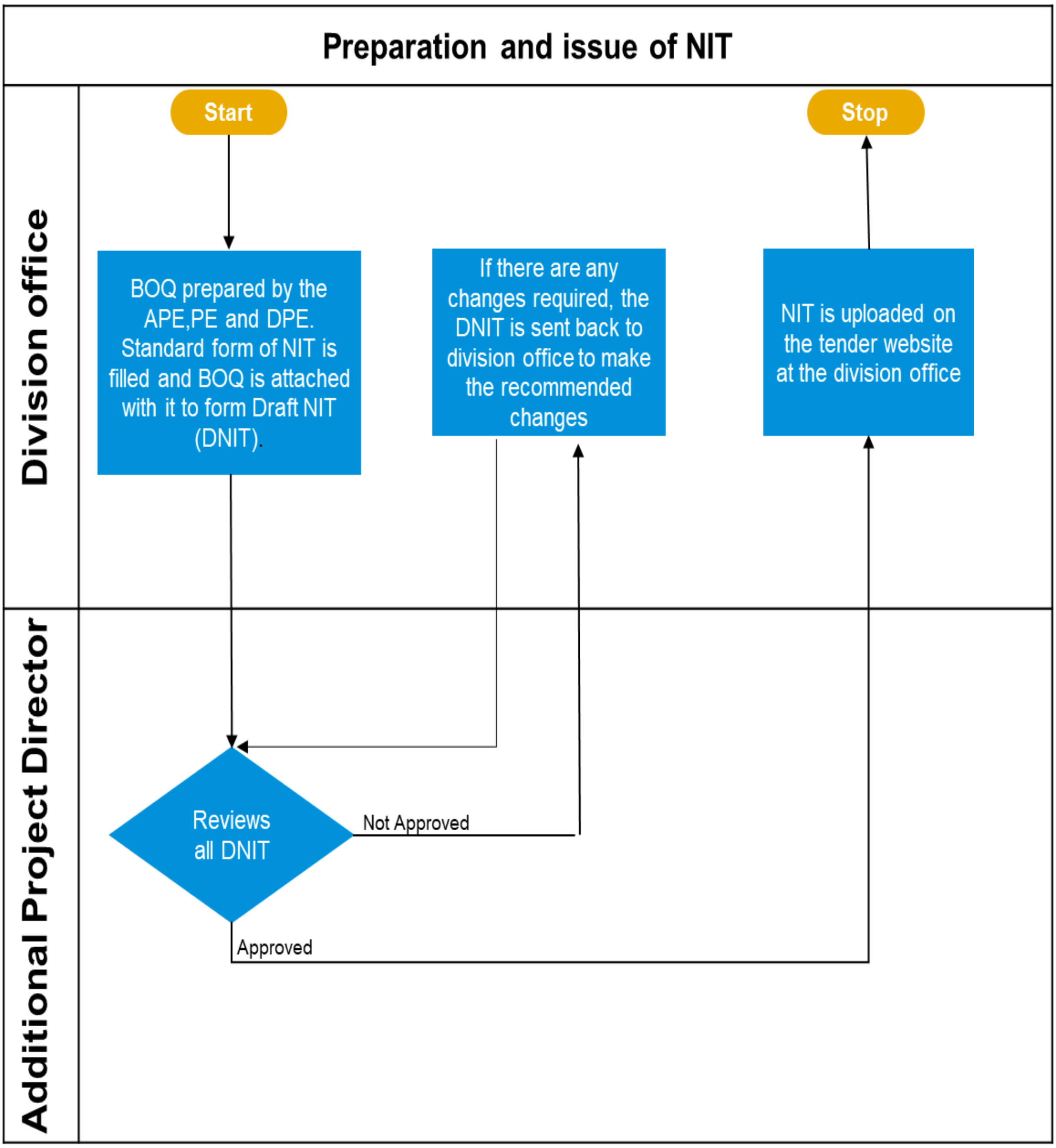
In some cases, variation in quantity is identified for an ongoing project and there is a need to revise estimate to cater to the requirements of the project. This process captures the procedure for revision of estimate and obtaining of technical sanction for the same.



*SFC – Standing Finance Committee
EFC – Empowered Finance Committee
PAC – Public Account Committee

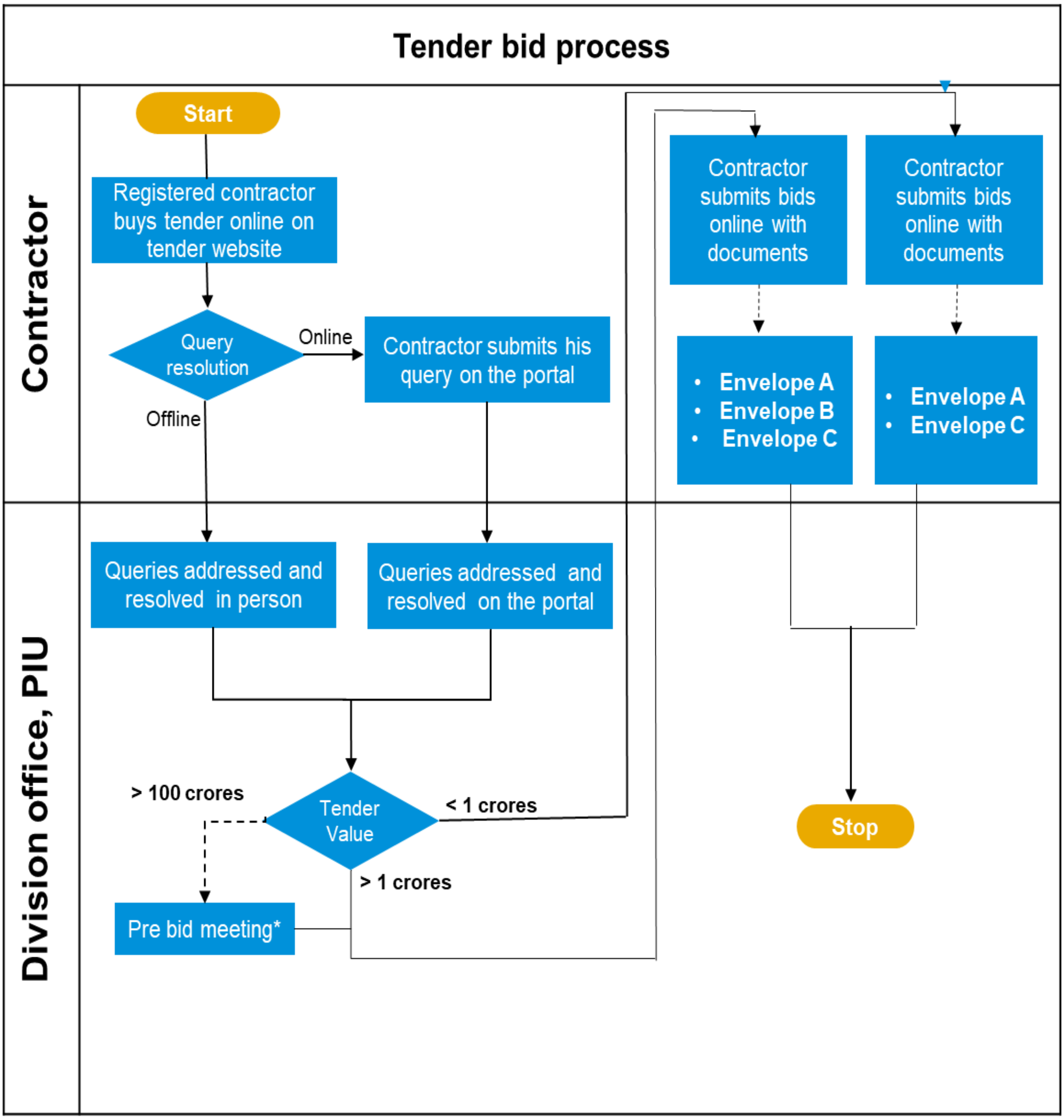
7.3.6 Preparation and Issue of NIT

After AA and TS, the department prepares Draft NIT for the project. The Draft NIT is then approved from the concerned authority and then published on the tender portal. This process captures the procedure of preparation, approval and issue of NIT.



7.3.7 Tender Bid Process

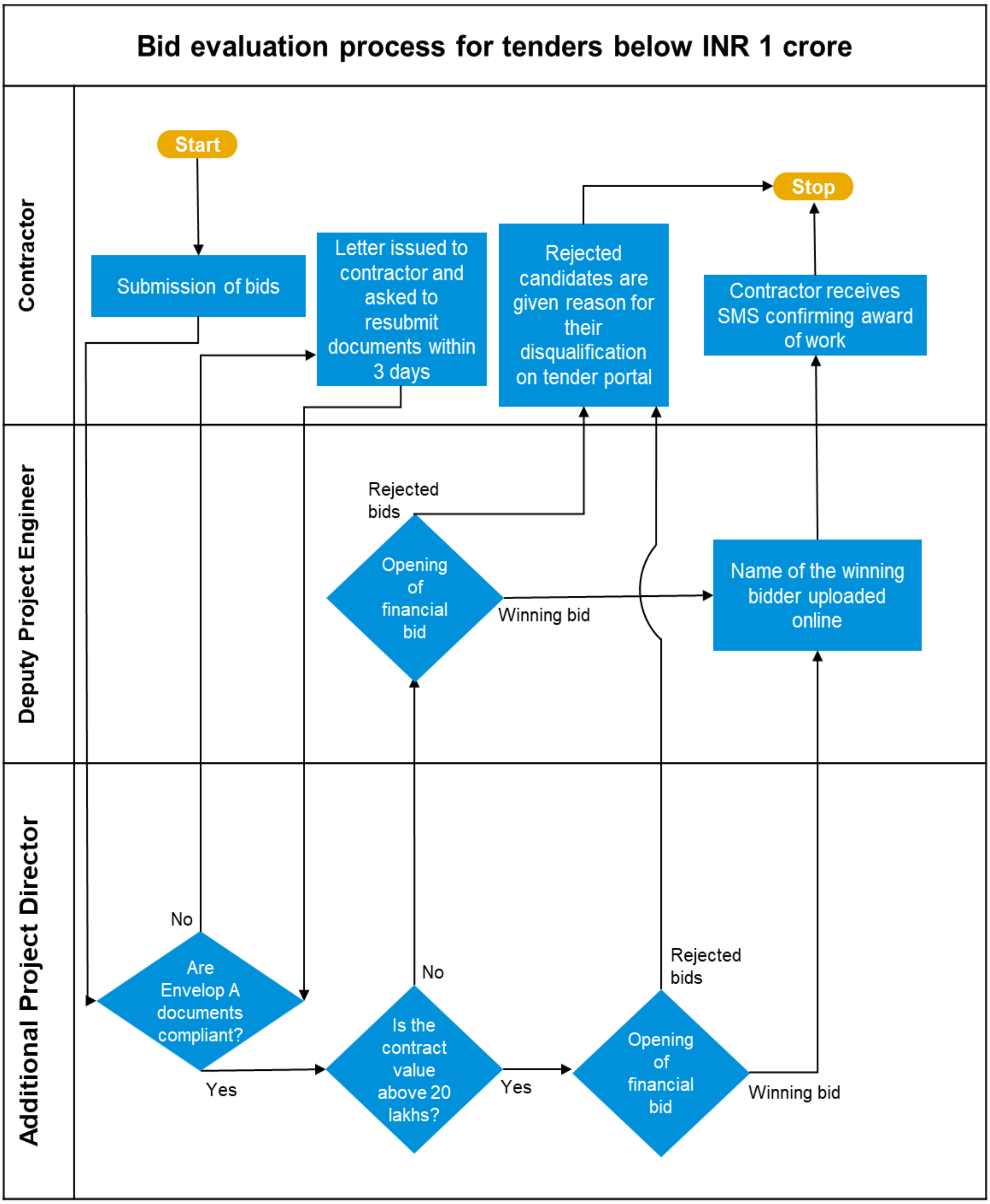
After publishing of tender on tender website, contractor purchases the tender and submits the bid online. This process captures the procedure of tender bid submission by the contractor.



* Pre bid meeting is conducted for project above 100 Crores on discretion of PD. In case of any discrepancies found in tender document, minutes of meeting and corrigendum is issued online on tender portal. In some cases, date of tender submission is extended if required.

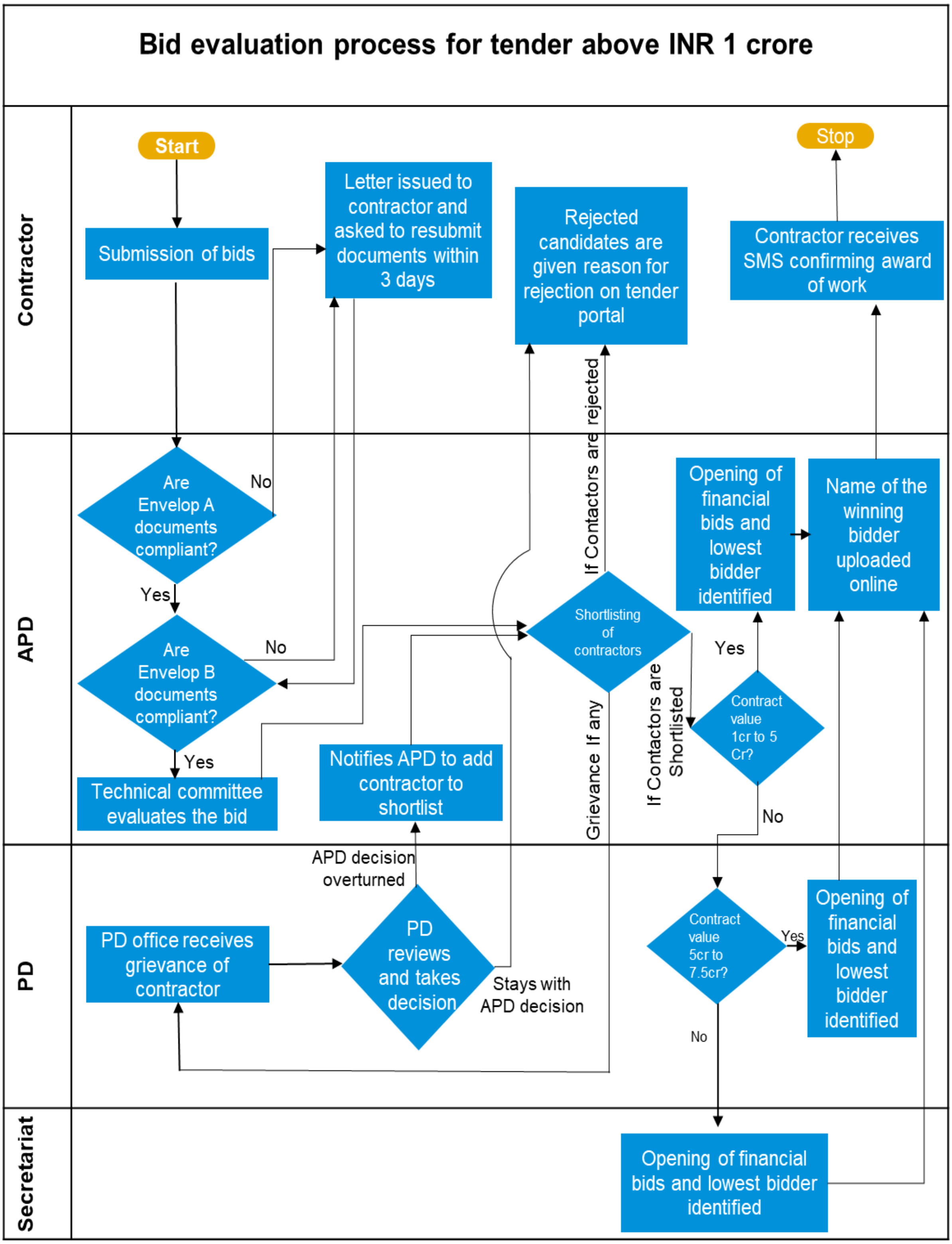
7.3.8 Bid evaluation for tenders of value less than 1 Cr

After submission of bid, the evaluation of bids is conducted. Evaluation of bids are conducted differently based on the contract value of the project. The process captures the procedure for bid evaluation for tender of value less than 1 Cr.



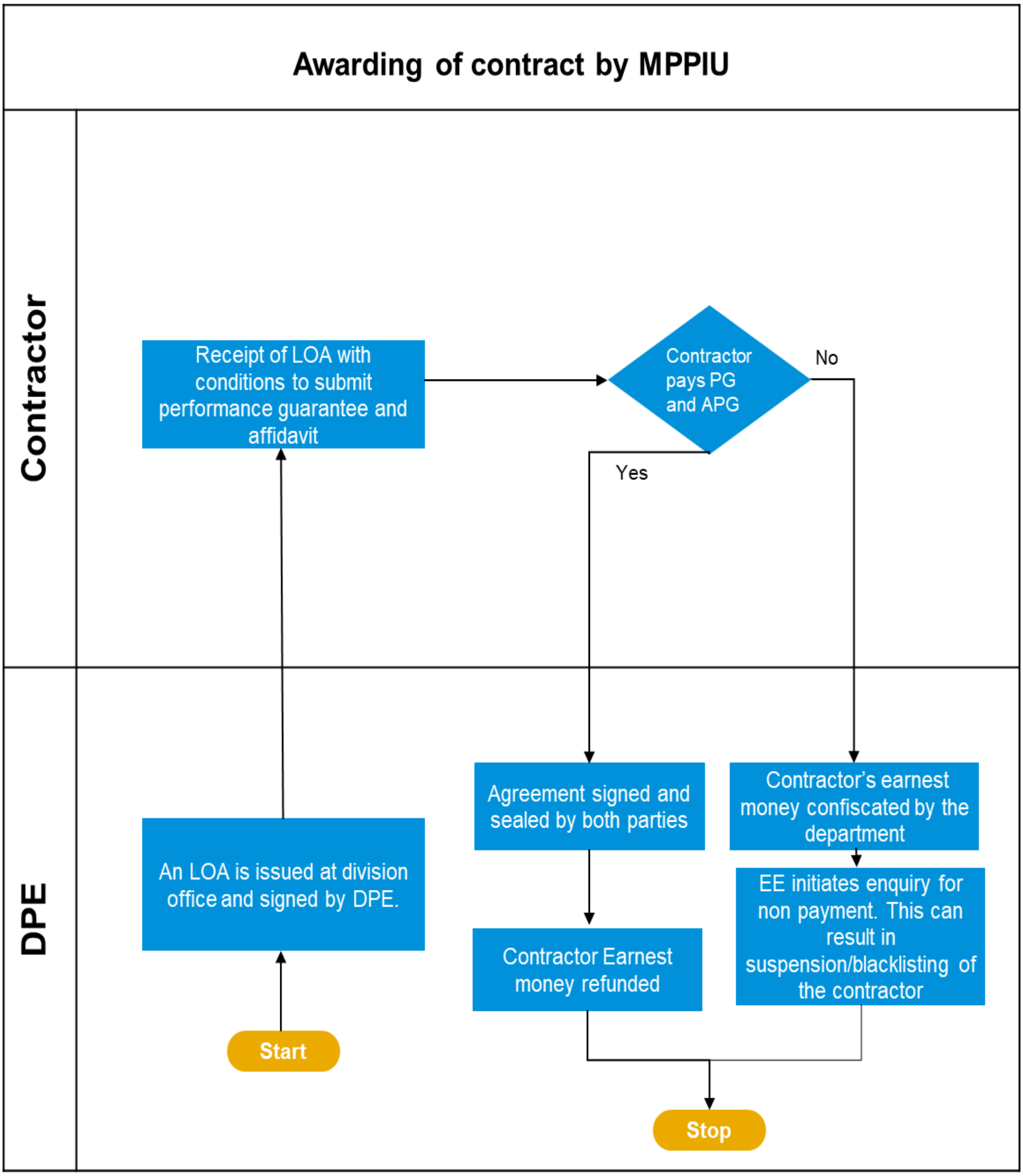
7.3.9 Bid evaluation for tenders of value more than 1 Cr

After submission of bid, the evaluation of bids is conducted. Evaluation of bids are conducted differently based on the contract value of the project. The process captures the procedure for bid evaluation for tender of value more than 1 Cr.



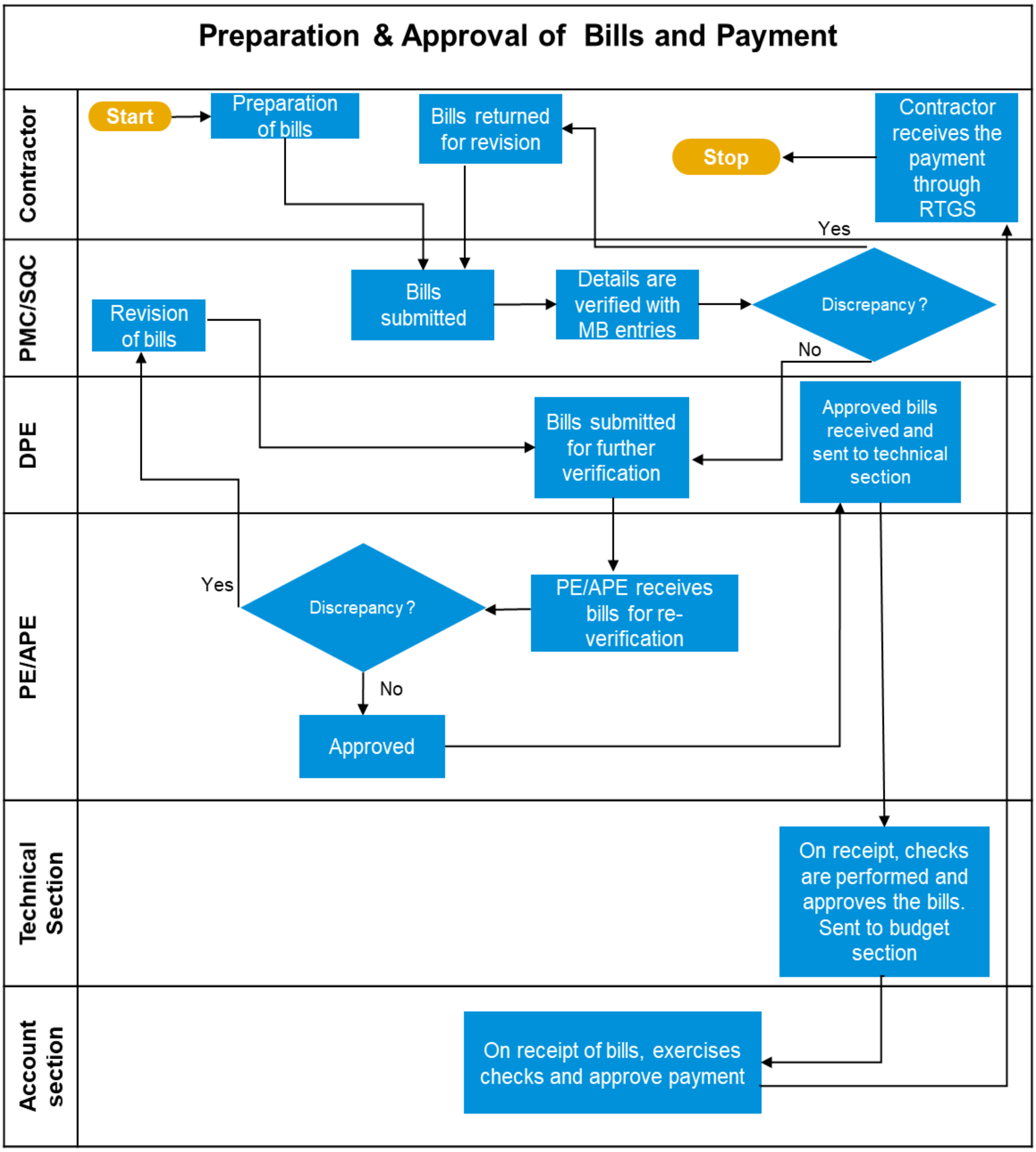
7.3.10 Contract Award Process

After evaluation of bids, lowest bidder (L1) is identified and contract is awarded to the lowest bidder. The process captures the procedure for awarding of contract to the lowest bidder and signing of agreement.



7.3.11 Preparation and Approval of Bills

During the work, bills are submitted by contractor at agreed time periods or at achievement of agreed milestones. The bills goes through a verification process from concerned authorities before getting approved. Once approved, the bill goes to account section for payment of the bills. This process captures the procedure for preparation, approval and payment of bills.



8 Existing IT Systems

8.1 IT SYSTEMS IN MPRDC

8.1.1 RAMS (Roads Asset Management System)

1. MPRDC with assistance from ADB has implemented Road Asset Management System (RAMS) for integrated management and planning of Road Assets in Madhya Pradesh. As part of RAMS implementation, total 10,000 KM road network of MPRDC is covered under various surveys related to Road Inventory, Road Condition, Bridge Condition, Traffic Count, etc. The salient features of RAMS are below:

- Single platform for Road Planning, Development and Management agencies i.e. MPPWD and MPRDC.
- Serves as a planning and investment strategy tool and not just a traditional engineering-based management system giving the unique ID for each road considering the type of road, such as NH, SH, MDR, ODR, VR, location such as district/PWD Division.
- Determination of the funding levels required to maintain an asset at a specified level of service.
- Performance monitoring reports for enhancing the credibility of the decision-making process
- Prioritization of work requirements and funding allocations to achieve the goals and objectives of the administration.
- To prepare an integrated annual maintenance management program for the network to maintain required service level.

8.1.2 ARS (Accident Response System):

Madhya Pradesh Road Development Corporation (MPRDC) has set up one of the country's first integrated Accident Response System and Traffic Management Centre (ARS & TMC) – a system that integrates emergency response with intelligent transportation systems for the benefit of public. The integrated command centre, inclusive of operational software systems has been delivered by Trivandrum-based ARS Traffic & Transport Technology (ARS T&TT India), a subsidiary of ARS T&TT, The Netherlands. The centre has played a pivotal role in significantly improving mobility and road safety in the state. This integrated centre monitors and mobilizes traffic on 20,000 km of road including National Highway, State Highways and MDR (Major District Roads). Along with monitoring the operational efficiency of toll operators, the centre fulfils the role of national incident resolution centre in case of accidents or incidents thereby fitting into state's disaster management policy.

8.1.3 Online and other IT systems for knowledge management

Technology can be leveraged to a great extent these days to manage all documents. Some of the key applications which must be a part of the knowledge management system within and outside the MPRDC are:

Within the MPRDC

- Performance Review System
- Monthly Management Information system
- Road Asset Management System (RAMS)
- File Tracking System (FTS)

Between MPRDC and other stakeholders:

- Computerized Project Information System (CPIS)
- Road Information System (RIS)
- Toll Information System (TIS)
- Accident Response System (ARS)
- PPP Project Information System (PPP PIS)

8.1.4 Knowledge Management Policy

It is essential that all knowledge which is generated in form of communications and documents generated for internal use are preserved in a coherent manner within the MPRDC. Also, how the flow of information happens within the MPRDC is also a critical part of Information Dissemination Plan. At all three levels, HQ officer, Chief Engineer, Technical Advisor and Managing Director the information flow should be in accordance with the requirements and mapped to the roles and responsibilities of the officials at that level.

A policy on reviewing all the applications and systems developed as a part of the plan, and escalation within the MPRDC should be set. This policy should include:

- All protocols within the MPRDC Levels
- All compliance requirements to be met in documentation such as following IFRS accounting principles
- Training and user manuals as appendix to assist users in operation of these systems

8.1.5 Knowledge Management Plan

A comprehensive knowledge management and information dissemination plan is required to be developed as part of increasing efficiency and effectiveness of contract management system. Knowledge management and information dissemination will include:

- Public disclosures
- Online and other IT systems for knowledge management
- Knowledge Management Policy

The MPRDC should mandate the private party involved maintaining a database of important documents available for access to the public and other stakeholders involved thereby targeting to increase seamless flow of information and transparency. Back-up copies of documents and resources accessible should be maintained enabling multiple accesses to resources and ensuring sturdiness of database. Those documents that must be included in the category of "Specified Documents" include:

- Concession Agreement
- Maintenance Manual
- Maintenance Program
- Maintenance Requirement
- Safety Guidelines

Implementation of a knowledge management system by the private party involved in the agreement would assist the MPRDC in meeting its own accountability requirements and build a robust transparent system. To protect interest of the MPRDC and the private party, access to critical documents should be limited and thereby not disclosed as part of the knowledge system. Such documents are termed as "Protected Documents". Access to such documents should be routed through a channel developed whereby request to access is monitored and evaluated by the key stakeholders involved in that particular project only. Also, it should be ensured that withholding such documents is in line with the Right to Information Act, 2005. To release any such document on conditional basis, approval must be sought from the Decision-Making Level MPRDC.

8.2 IT SYSTEMS IN MPPWD (ROADS & BRIDGES)

At present, following IT Applications and systems are available in MPPWD:

Application/System	Purpose	Development	Working Status
WMS	Works Monitoring	In-house on Microsoft Technologies.	Operational
Road Register	Road Asset Management	In-house on Microsoft Technologies.	Operational but not effectively

Application/System	Purpose	Development	Working Status
Smart Office	Electronic File processing	Developed by Third Party	Not implemented
Building Maintenance & Monitoring System (E-Sewa)	Service Request management for residential buildings of MP Govt.	Developed by Surevin as part of CM Helpline	Operational
PIU Building Works Management System	Building Construction Management	In-house	Operational
EMS	Employee Database	In-house	Not implemented
IFMIS	Financial Management	Developed by Third Party (TCS) and implemented by Treasury and Accounts Dept.	Operational
MPTenders	Electronic Tender publication, bidding and Processing.	Developed by NIC and implemented by MPSEDC.	Operational
Court Case Management System	Court Case Management and Status tracking.	Developed by Third Party and implemented by Office of Advocate General	Operational
Contractor Registration System	Contractor Registration.	Developed by MPOnline.	Operational
Other Systems - Tour Diary Mobile App Contact Management System (Mobile App)	Tour record keeping.	Developed by Third Party	Not Implemented

8.2.1 Works Monitoring System (WMS)

Works Monitoring System is at the core of all the IT system. It is a system developed in-house that tracks PWD road development and maintenance projects at various stages and generate multiple reports. It is developed on Microsoft Platform using C# and SQL Server at backend and bootstrap framework at frontend. Following details are gathered in the system at execution stage:

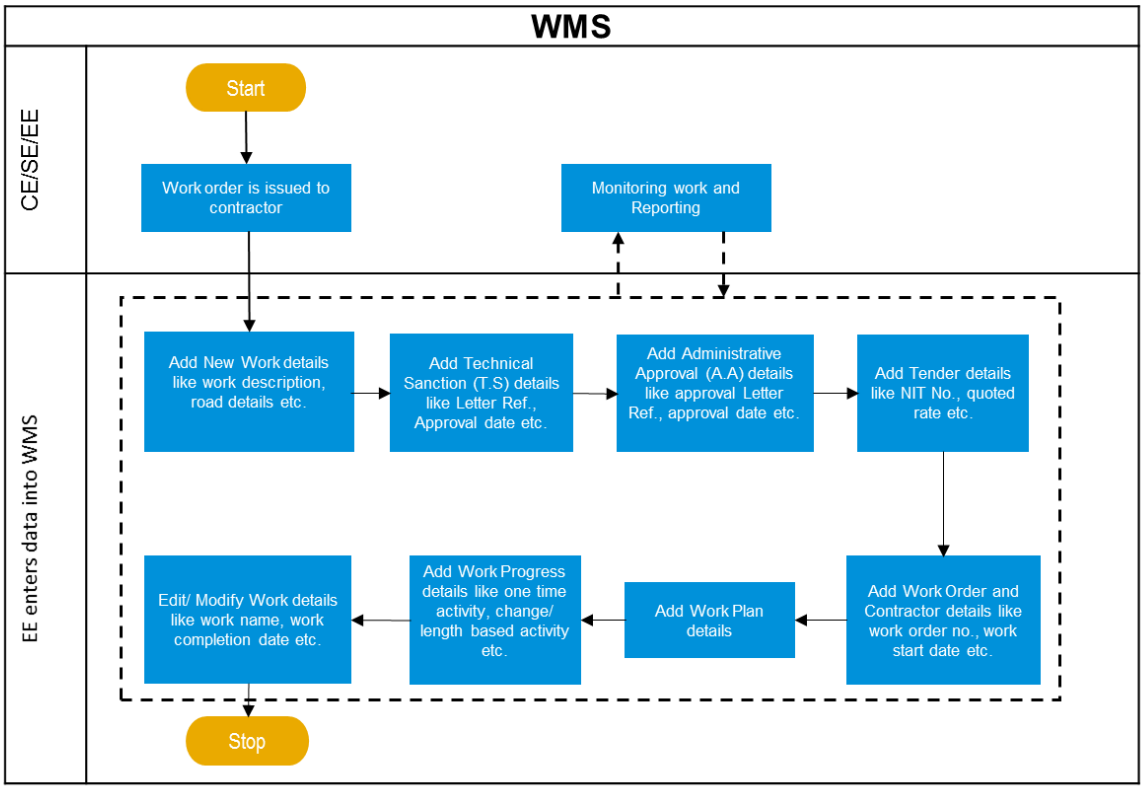
1. Work Details
2. Road Detail
3. Technical Sanction Detail

4. Administrative Approval Detail
5. Budget Provision Detail
6. Tender Detail
7. Work Order Detail
8. Contractor and Bank Details
9. Bill Detail

8.2.1.1 *Functions*

1. Works Recordkeeping
2. Works Monitoring
3. Progress Target Setting (Physical & Financial)
4. Works Reporting

8.2.1.2 *Process Flow*



8.2.1.3 *Detailed Description*

S. No	Process Steps	Process Narration	Documents Involved	Online/ Offline	Process Incharge
1.	Work order issued	Order for new work is issued by letter	Work order	Offline	E-in-C

S. No	Process Steps	Process Narration	Documents Involved	Online/ Offline	Process Incharge
2.	Add New Work	EE adds new work details: Work description • Sub Division • Parliament Constituency • Assembly Constituency • Administrative District • Head Category • Head • Head scheme name • Work Type • Work Name • Work Domain • Work Description • Road details • Road Name • Road Category • Road Type • Road Number • Chainage to/from • No. of Brg/culvert • Lane	Work order	Online	EE
3.	Add Technical Sanction	EE adds Technical Sanction details on WMS: • Letter Ref. • Attach Ref. Copy • Approval date • Approved by • Amount of civil work • Miscellaneous amount	Technical Sanction Letter	Online	EE
4.	Add Administrative Approval	EE adds Administrative Approval details on WMS: • Approval Letter Ref. • Approval Ref. Copy • Approval Date • Approved By • Amount of Civil Work	Administrative Approval Letter	Online	EE

S. No	Process Steps	Process Narration	Documents Involved	Online/ Offline	Process Incharge
		• Miscellaneous Amount • Total Amount			
5.	Add Tender Details	EE adds Tender details on WMS: • NIT No. • NIT Date • Sanction Authority • Tender Type • PAC • Quoted Rate • Applicable SOR • SOR Amendment date • Contract Amount • Award Date	Tender Document	Online	EE
6.	Add Work Order and contractor	EE adds Work order details: • Select Work • Work order no. • Work order date • Work start date • Stipulate work completion date • Contractor type • Select old contractor and Contractor details on WMS: • Contractor ID • Registration No. • Contractor Name • Category • Class • Email ID • Mobile Number • Pan Number • Address • Pin Code • Bank Details			

S. No	Process Steps	Process Narration	Documents Involved	Online/ Offline	Process Incharge
7.	Add Work Plan	EE adds Work plan details on WMS	-	Online	EE
8.	Add Work progress entry	EE adds Work progress details on WMS: • One time activity • Change/Length based activity • % based activity • Bridge and Culvert activity • Fill bill information • Fill work delay reasons • Fill submission of monthly progress		Online	EE
9.	Edit/ Modify Work detail	EE edits/ modifies details on WMS: • Work Name • Work Order Number • Work Order Date • Work Start Date • Work Completion Date	-	Online	EE

8.2.1.4 Reports

1. Target Report (View Target)
2. Competed Work
3. Work in Progress
4. PG Amount Release
5. PG Forfeited Report
6. Custom Report (My Report)

8.2.2 Asset Inventory in MPPWD

Presently, asset inventory is a part of WMS as road register, bridge register and asset register. Functionality of asset management system is limited for maintaining asset register.

Road Category : ALL

Road Register Summary Zone Wise

Export to Excel

Road Register Summary Zone Wise ()(15/05/2019)

S. No.(1)	Zone Name(2)	Total Road Count(3)	Total BT (In Km.) (In Km)(4)	Total CC (In Km.) (In Km.)(5)	Total WBM (In Km.)(6)	Total Length (In Km.)(7)	Total Road Handed To Other Department (In Km.)(8)	Net Length (In Km.)(9)	Total Plan Length(10)	Total Strengthening Length (In Km.)(11)	Total Renewal Length (In Km.)(12)	Total PatchWork Length(13)	Total PG Length (In Km.)(14)	Total AR Length(15)
1	Chief Engineer Capital Zone Bhopal	1608	7306.48	1645.33	1062.72	10266.05	0.00	10266.05	2145.91	188.31	320.48	0.60	1049.58	6561.07
2	Chief Engineer Central Zone Jabalpur	922	3166.91	558.72	534.03	4510.47	0.00	4510.47	422.16	101.69	235.84	0.00	394.44	3356.32
3	Chief Engineer N.H. Zone Bhopal	1	44.50	4.20	0.00	48.70	0.00	48.70	0.00	0.00	0.00	0.00	0.00	48.70
4	Chief Engineer North Zone Gwalior	584	3313.62	537.89	138.19	4193.18	0.00	4193.18	757.53	110.74	77.65	0.00	212.45	3034.80
5	Chief Engineer Rewa Zone, Rewa	1025	3385.70	409.32	1005.90	5096.97	0.00	5096.97	455.51	93.30	190.09	0.00	167.35	4190.69
6	Chief Engineer Sagar Zone, Sagar	615	4311.92	240.14	212.92	5091.14	0.00	5091.14	771.77	387.05	776.06	0.00	987.94	2168.26
7	Chief Engineer Ujjian Zone, Ujjain	779	4202.33	733.63	249.53	5690.76	0.00	5690.76	822.33	82.91	165.30	0.00	706.50	3913.70
8	Chief Engineer West Zone Indore	1026	4101.01	757.60	459.55	5513.95	0.00	5513.95	807.72	204.84	281.31	0.00	577.38	3642.41
	Grand Total	6560	29832.47	4886.83	3662.84	40411.22	0.00	40411.22	6182.93	1168.84	2046.73	0.60	4095.64	26915.95

Search By Road Category: ALL

Bridge Register Summary Zone Wise

Export to Excel

Report A Zone Wise ()(15/05/2019 11 AM)

		No. Of Bridge Structure										Level		
S. No.(1)	Zone Name(2)	Pipe	Box	Bridge/Culvert			Flush Cause Way	Vented CauseWay	ROB	RUV	Total	High Level	Submersible	High Level Submersible
				Culvert	Minor Bridge	Major Bridge								
1	Chief Engineer Sagar Zone, Sagar	54	1		1	1					59	2	1	
2	Chief Engineer West Zone Indore	18									18			

भवन का प्रकार(आवासीय/गैरआवासीय) द्वारा खोज: : ALL

Building Register Summary Zone Wise

Export to Excel

Building Register Summary Zone Wise (ALL)(15/05/2019)

S. No.(1)	Zone Name(2)	Building Count (3)	Recorded Value (In Lakhs)(4)	Plinth Area (Sqm)(5)	Cubic Content (Cum)(6)	Annual Maintenance (In Rs.)(7)
1	Chief Engineer Capital Zone Bhopal	409	5855.06	222191.83	555496.96	35438664
2	Chief Engineer Central Zone Jabalpur	422	1650.69	62927.65	238739.25	1389536
3	Chief Engineer North Zone Gwalior	543	6127.82	206947.04	1239083.49	38718357
4	Chief Engineer Rewa Zone, Rewa	27	34211.91	16294.51	43433.63	259678
5	Chief Engineer Sagar Zone, Sagar	1044	1116315.57	474656.94	2300141.56	29928553
6	Chief Engineer Ujjian Zone, Ujjain	681	14383.23	144010.55	565207.78	14728849
7	Chief Engineer West Zone Indore	1653	124893413.70	1775742.71	7074859.56	107517496
	Grand Total	4779	126071957.98	2902771.23	12016962.23	227981133

Also, there is a section in WMS categorized under "Road History" which has the details about the works conducted on the roads. This section is very informative and it allows users to get details about the works conducted date wise with information such as PG date, Work order date, length, type of work etc.

Road History

Road List Search By Work Name:

SNo	Road Name	Road Category	BT (In Km.)	CC (In Km.)	Total Length (In Km.)	Road Handed To Other Department	Plan	Strengthening	Renewal	PatchWork	PG	AR	
1	Ujjain Maxi Road	ODR	2.10	0.00	2.10	0.00	0.00	0.00	0.00	0.00	0.00	2.10	Road History
2	(Kanhiwara) Jurtara to Hinotiya road	VR	1.10	0.00	1.10	0.00	1.10	0.00	0.00	0.00	0.00	0.00	Road History
3	Amha Badirundh to Udaypur Road	VR	0.00	0.00	6.00	0.00	0.00	0.30	3.00	0.00	2.70	0.00	Road History
4	Approach Road of Govt.Building Chhatarpur Sub Division	VR	3.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	Road History
5	Atal Akhada to Bhukti Mata Barraj road	ODR	0.00	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60	Road History
6	Atarhai Rithee Road	VR	5.70	0.00	5.70	0.00	0.00	0.00	0.00	0.00	5.70	0.00	Road History
7	Bade Ramdwara to Charadham Peewar block 80mm. 100 mm	ODR	0.00	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.40	Road History
8	BADOLIHOZE APPROACH	VR	0.90	0.90	1.80	0.00	0.00	0.00	0.00	0.00	0.25	1.55	Road History
9	BARACH APPROCH ROAD	VR	0.00	0.00	4.20	0.00	4.20	0.00	0.00	0.00	0.00	0.00	Road History
10	Beohari Naudhiya Kahaira Road	ODR	11.00	0.00	11.00	0.00	0.00	0.00	8.80	0.00	0.60	1.60	Road History
11	Bhaisana bypass road	VR	2.60	0.00	2.60	0.00	0.00	0.00	0.00	0.00	0.00	2.60	Road History
12	Bhatkheda Icchapur Road	VR	6.80	0.00	6.80	0.00	0.00	0.00	0.00	0.00	0.00	6.80	Road History
13	Bhilsay to Girwara Road	VR	6.06	0.00	6.06	0.00	0.00	5.25	0.00	0.00	0.81	0.00	Road History
14	BIRUL BAZAR SAWALMEDHA GHANA ROAD	VR	5.48	0.52	6.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	Road History
15	Constt.of SATERIYA TO GARIMA PETROLL PUMP A B Road Length=4.00 KM	VR	4.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	Road History
16	Devkhajuri to Gulabganj Road	ODR	14.80	0.20	15.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	Road History
17	ENKHEDA JAWARA ROAD	VR	4.00	0.45	4.45	0.00	0.00	0.00	0.00	0.00	0.00	4.45	Road History
18	Gora App. road	VR	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	Road History

Implementation Agency would need to study these systems and migrate the data and code into the proposed new system.

8.3 IT SYSTEMS IN MPPWD-PIU

8.3.1 Project Progress Monitoring System

www.piuworks.in is an online progress monitoring system for all the ongoing building works. It has been developed in-house and tracks building development and maintenance projects at various stages and generates multiple reports along with photographs. It is developed on the Microsoft platform using .Net and SQL Server as backend.

There are multiple dashboards available for all PIU official levels.

The following reports are generated in the system in Project Director dashboard. These reports display Summary of all department building development work. Apart from that there is an Announcement module in which Project Director can send broadcast messages to the respective staff.

8.3.2 Reporting Module

- Summary report of all departments
- Plan wise summary report of all departments
- Work group /plan /department wise reports
  - F1 – Building work detail - Approval work and allotted WP number
  - F2– Building work detail - Completed information
  - F3– Building work detail - Progress Report Summary
  - F4– Building work detail - Immediate demand
  - F5– Building work detail - Progress report detailed
  - F7– Building work detail – Not started
  - F8– Building work detail – Completed work
  - F9– Building work detail – Demand
  - F10– Building work detail – Photo Information
- District wise works details
- APD review status
- F6- Summary report of all departments (with Amount detail)
- F6A – Scheme wise summary report (with expense detail)
- Listing of Technical staff of Contractor and consultant basis on positions
- Search the technical staff of the contractor and the consultant
- Information basis on Vidhan Sabha (M.P. Assembly) and department
- WP no. wise photographs

- Review Report
- Department wise Photo gallery
- Progress Sheet with Photographs
- Empanelment of Technical person of the consultant and contractor – Entry form with following fields - Name, Mobile No, Age, Technical Post applied for , Office in which application submitted etc.
- Announcement module (for SMS broadcasting)
- Send for Review

Following are few samples.

Report Format (F1 – Building work detail - Approval work and allotted WP number)

लोक निर्माण विभाग पी.आई.यू. भवन कार्य की जानकारी
F1- स्वीकृति कार्य एवं आवंटित डबलू.पी नम्बर

क्रमांक	जिला	परिक्षेत्र	विभाग का नाम	विभाग की बजट पुस्तिका का क्रमांक	योजना (बजट पुस्तिका के अनुसार)	विस्तृत शीर्ष	कार्य समूह (प्रचलित नाम अनुसार)	कार्य का नाम	वर्क प्रोजेक्ट (डबलू.पी.) नम्बर	प्रशासकीय स्वीकृति का विवरण				टिप्पणी
										जारीकर्ता अधिकारी	पत्र क्रमांक	दिनांक	राशि लाखो में	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	भोपाल	भोपाल	लोक शिक्षण /स्कूल शिक्षा	20	हायर सेकेण्डरी स्कूल भवनों का निर्माण	40-4202-01-202-6970-0102-64-V-001	हायर सेकेण्डरी शाला भवन	हायर सेकेण्डरी स्कूल भवन रूनाहा का निर्माण कार्य।	2421414	शासन	F-27-23/2017/20-2/353	26 Feb 2018	87.00	
2	भोपाल	भोपाल	लोक शिक्षण /स्कूल शिक्षा	20	हायर सेकेण्डरी स्कूल भवनों का निर्माण	40-4202-01-202-6970-0102-64-V-001	हायर सेकेण्डरी शाला भवन	शसकीय कन्या उच्चतर माध्यमिक विद्यालय रषीदिया बरखेड़ी भोपाल में संयुक्त शाला भवन का निर्माण कार्य।	202631	शासन	F27-31/15/20-2	15 Oct 2015	1259.00	

F5– Building work detail - Progress report detailed

लोक निर्माण विभाग पी.आई.यू. भवन कार्य की जानकारी F5- प्रगति प्रतिवेदन (विस्तृत): (प्रिंट निकालने का दिनांक:- 12/02/2020)

क्रमांक	जिला	कार्य का प्रचिलित नाम	कार्य का नाम	प्रशासकीय स्वीकृति			निविदा								कार्य की स्थिति	प्रगतिरत कार्य			अप्रारंभ	पूर्ण कार्य		वित्तीय प्रगति			डाटा एंट्री की दिनांक	जमा मद में प्राप्त कुल आंवटन	19.20 की मांग	भूमि उपलब्धता	भवन का क्षेत्रफल (वर्गमीटर में)
				प्र.स्वी. का दिनांक	कुल प्र.स्वी. राशि लाखो में	प्र.स्वी. का वित्तीय वर्ष	कार्यादेश दिनांक	पी.ए.सी.	निविदा प्रतिशत अधिक /कम	निविदा दर	ठेका लागत	ठेका अवधि (माह में)	अनुबंधानुसार कार्य पूर्ण करने (लक्ष्य)का दिनांक	अनुबंधानुसार कार्यपूर्ण करने(लक्ष्य)का वित्तीय वर्ष		प्रगति का स्तर	संभावित वास्तविक लागत(लाख मे)	कार्यपूर्ण करने का संभावित (पुनरीक्षित) वित्तीय वर्	अप्रारंभ का कारण एवं अवधी (माह में)	पूर्ण हुऐ कार्य का वित्तीय वर्ष	पूर्ण कार्य की वास्तविक लागत दायित्व समेत(लाखो में)	मार्च 19 तक व्यय	वर्ष 19.20 में व्यय	अद्यतन व्यय					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
विभाग का नाम :- लोक निर्माण विभाग , स्कीम का नाम:- विश्राम भवन/गृह का निर्माण/पुनर्निमाण/ पुनेस्थापना, विस्तृत शीर्ष:- 67-4059-01-051-8042-64-0101-V-001																													
1	रायसेन	विश्राम गृह	ब्म्होरी (जिला रायसेन) में विश्राम गृह का निर्माण (190043)	31 Jan 2017	99.63	16-17	10 Apr 2017	88.71	कम	21.19	69.91	12	10 Apr 2018	17-18	पूर्ण	NA	0	NA - NA	NA NA	AUGUST- 18-19	99.63	40.38	15.86	56.24	21 Sep 2018	0.0	59.25	NA,	350.00
2	रायसेन	विश्राम गृह	सुल्तानगंज (जिला रायसेन) में विश्राम गृह का निर्माण (190044)	31 Jan 2017	99.63	16-17	18 Jun 2018	88.71	कम	15.26	75.17	10	18 Apr 2019	19-20	प्रगतिरत	फिनिसिंग	99	JANUARY - 19-20	NA NA	NA- NA	0.00	9.19	41.59	50.78	25 Jan 2020	0.0	90.44	भूमि विलंब से प्राप्त,29 Jul 2018	350.00
3	सीहोर	विश्राम गृह	शाहगंज जिला सीहोर में विश्राम गृह का निर्माण एवं साइट डेवलपमेन्ट का कार्य (190050)	12 Apr 2018	411.03	18-19	23 Jun 2018	363.20	कम	12.76	316.86	18	23 Dec 2019	18-19	प्रगतिरत	फिनिसिंग	411.03	MARCH - 19-20	NA NA	NA- NA	0.00	51.81	34.60	86.41	25 Jan 2020	0.0	359.22	भूमि प्रारम्भ से प्राप्त,12 Apr 2018	0.00

At district level, there is a speared module for data entry. Basis of entering details reports are getting generated on Project Director/ Additional Project Director dashboard.

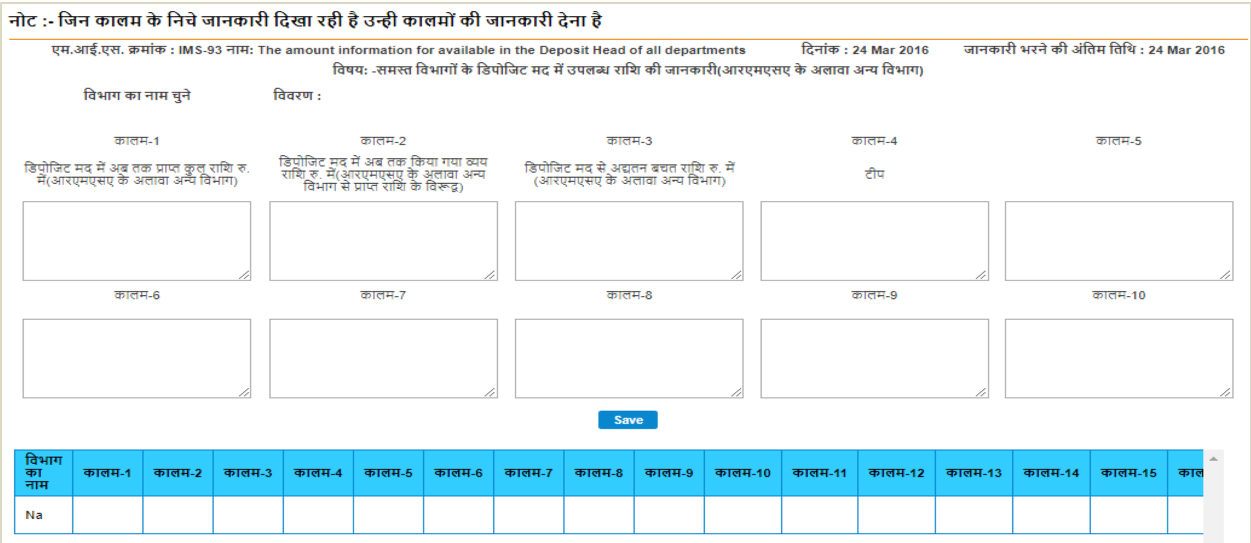
8.3.3 District Login (For data entry)

Land availability	Technical Approval	Relative Action
Tender details	Allotment received form Bank draft (Deposit head)	Physical Progress

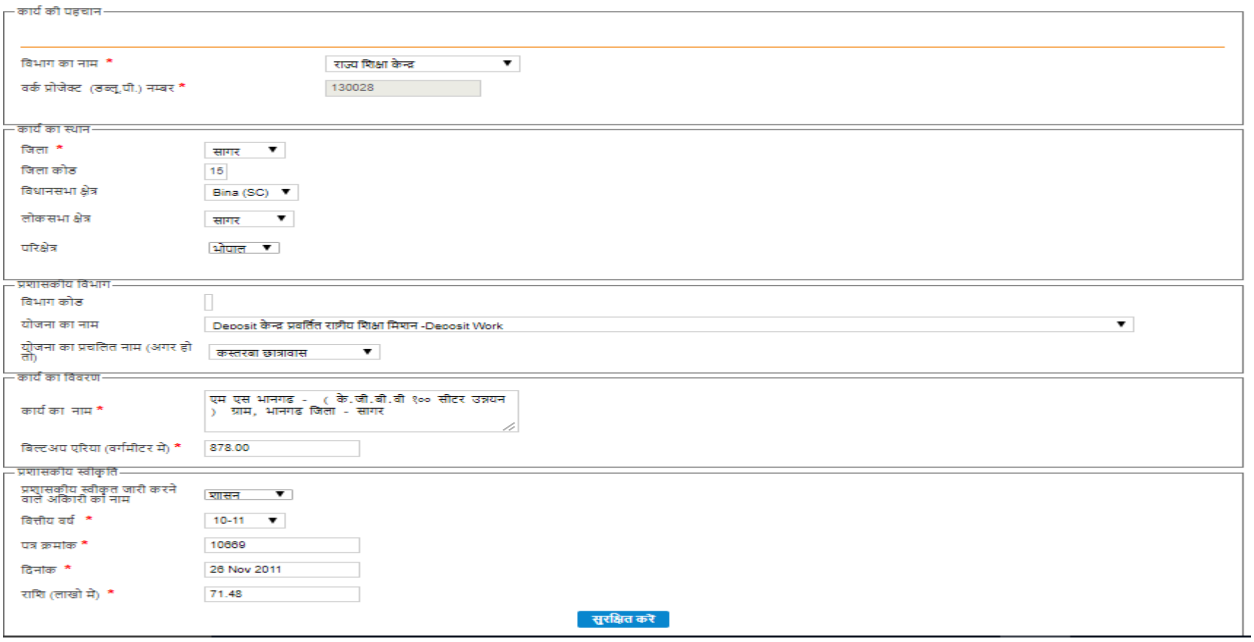
Expense details	Demand details	Immediate demand
Examination of work above 20 Cr.	Add new project	Projects left for approval
Establishment budget	Improvement of previous basic projects	Delete pending payment details
Photo upload	Bill tracking	Project related document download
IMS information	Problem/Suggestion module	

Mobile App for Data entry and photo upload

Entry Form for available amount in the deposit item



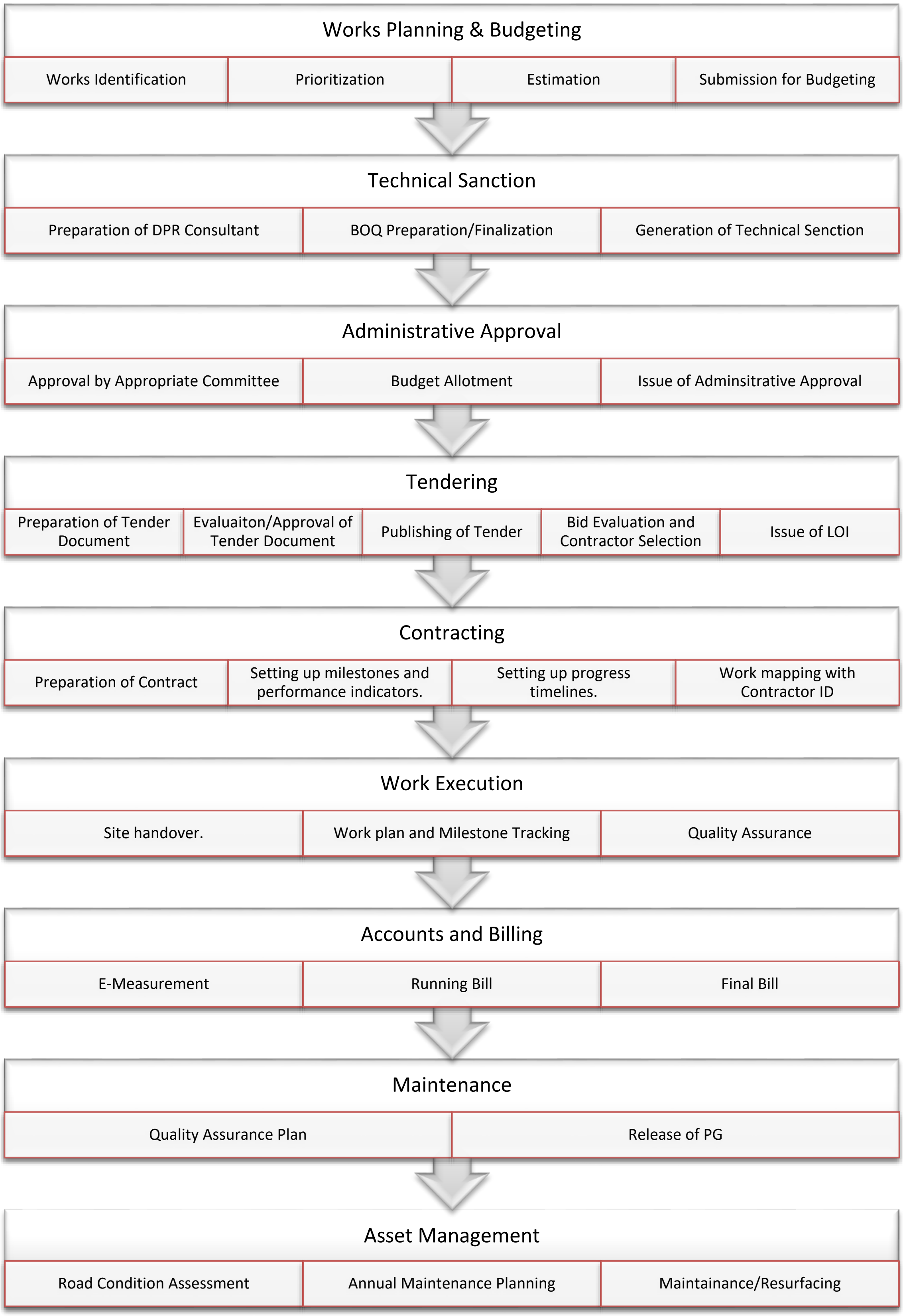
Update previous basic project details



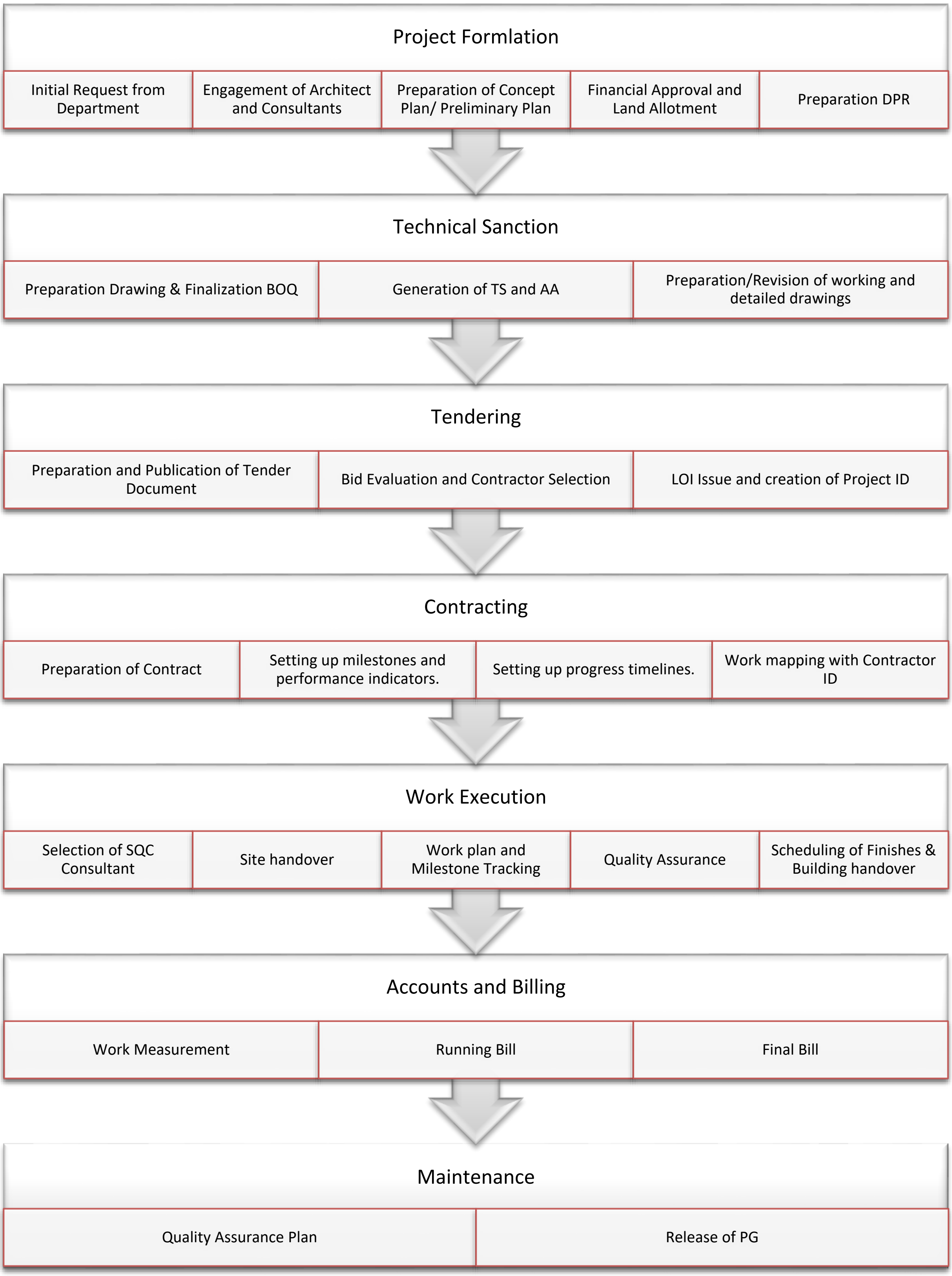
9 IPMS Requirements

1. MPRDC and MPPWD are looking for a robust Project Management system which can support in end to end project monitoring and management with special focus on modules such as Planning and Budgeting, Contract Management, Work Execution, Asset Management and works Management for all works including Roads, Bridges & Buildings.
2. Presently, MPPWD has manual input based system to track the projects. Given the varied nature of the projects undertaken by MPPWD and MPRDC, adoption of digital workflow based project management techniques is needed to help monitor all the projects on a single platform. The projects can mainly be segregated in two ways: ones with a works management component involving measurement of work progress while the others are projects which track activities to be done and do not involve physical measurement of progress.
3. Detailed below are the functional areas which are to be covered as part of the solution that is being envisaged to be implemented at MPPWD and MPRDC. While the detailed specifications are enlisted in the subsequent section, the below gives an overview of the expectations from the system.
4. Due to massive nature of the programs with multiple projects, numerous documents and workflow processes are expected throughout the lifecycle of each project thus creating a need for an effective and efficient electronic system to streamline and control the whole process of Information Management System.
5. The system to be developed by the Implementation Agency (IA) should be able to deliver at minimum the services listed below. The IA shall implement all the necessary functional, technical, operational and other supporting requirements to meet these services levels.

9.1 WORKS LIFECYCLE - MPPWD (R&B) AND MPRDC



9.2 WORK LIFECYCLE - MPPWD PIU



9.3 FUNCTIONAL REQUIREMENTS (APPLICATION LEVEL)

Indicative Functional modules and sub-modules of the system are shown in the figure below. These modules are indicative only and IA may arrange these sub-modules into any other group as long as the system is delivering the services listed in the RFP.

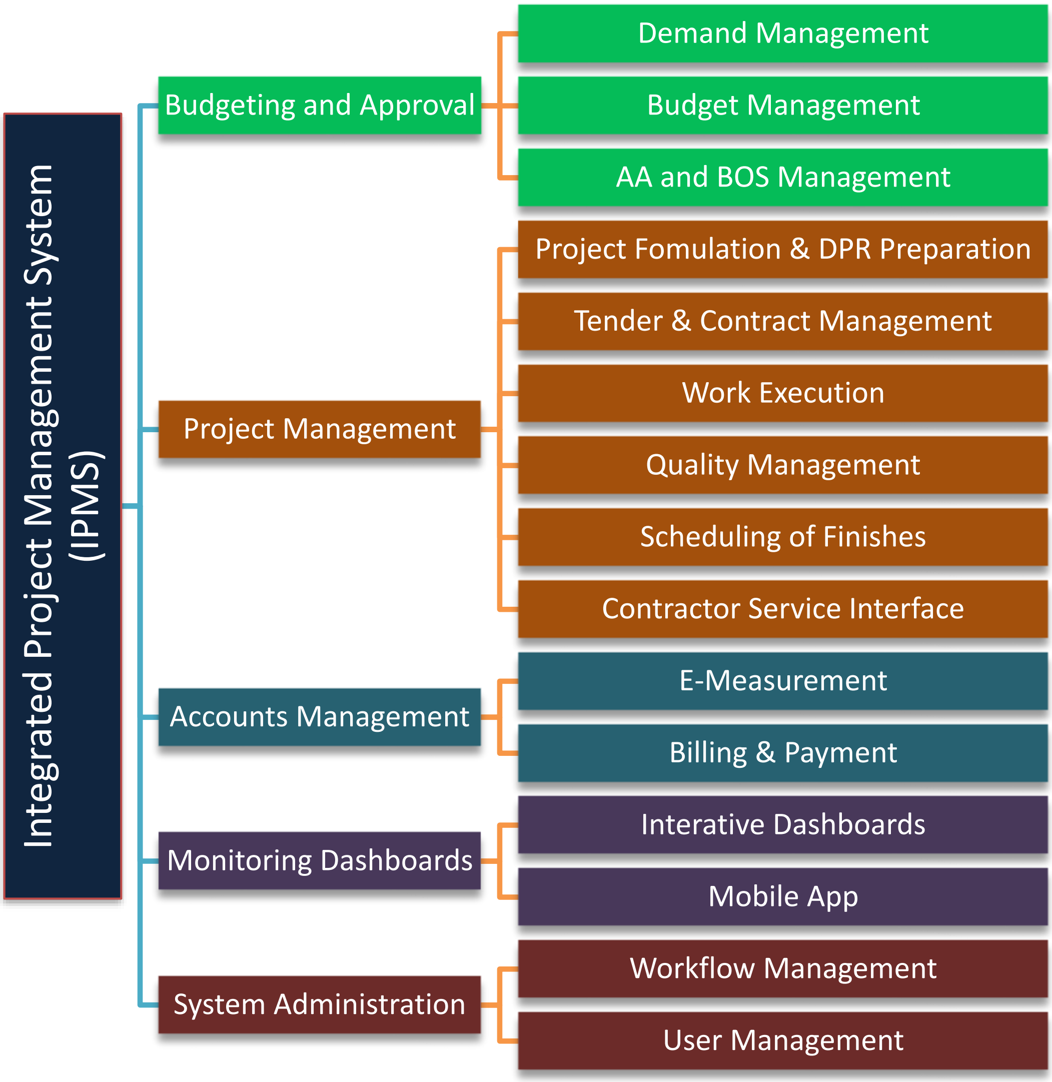


FIGURE 3: FUNCTIONAL ARCHITECTURE

IPMS Application shall provide following functionalities under different modules and services. These functional requirements are identified as minimum requirements to provide a fair idea on quantum of efforts required for delivering IPMS system. These functional requirements shall be finalized in respective phase by respective units (MPRDC, MPPWD Road & Bridges, MPPWD-PIU and Mantralaya Office).

9.3.1 Demand Registration

MPPWD Mantralaya office receive Work Demands from Policy Makers, Institutions and Public Representatives. These demands are analyzed by respective offices for viability, need and budgetary requirements. On the basis of these demands, budget proposals are prepared.

a. System should provide functionality for registration of Demands along with it's source, recommendation, category, priority, etc. at all the levels.

b. System should check if Demand is already received. If yes, should have provision to link same with earlier entry.

c. System should be able to track status of each demand and update respective Public Representative and Institution.

9.3.2 Budgeting and Project Approval

a. System should provide interface for due-diligence by respective offices on each demand. This will include following:

    1. Check if demand is already included in sanctioned budget of respective year. If yes, link it with respective budget item.
    2. Check if demand is already submitted for SFC/EFC approval. If yes link it with respective SFC/EFC work number.
    3. Update Road ID, Road Category and Work History of Last 3 years on that Road. Road ID is very critical as names mentioned in the demand letters are of fuzzy nature and de-duplication is very difficult.
    4. Check if demand requires individual budgetary approval or can be fulfilled with existing budgetary approval (AR/SR Demands) and SFC/EFC approval not required, allocate same to the respective unit and track until it reaches to logical end.
    5. If none of the above, study the demand and provide preliminary note along with First Stage estimate, if demand seems feasible prima facie.
    6. Prepare and upload DPR with recommendation of respective authority.
    7. Submit detail and upload TS of respective Works.

b. Shortlisting of Demands for Annual/Supplementary Budget Proposal and generate budget proposal.

c. Update records/demands with each budgetary approval.

9.3.3 Financial Approval

a. System should have provision for

    1. Shortlist Works/Demands which are approved in Budget, for EFC/SFC/PSC Approval.

2. Schedule EFC/SFC/PSC meeting with date/time/venue/attendees of such Meeting and generate EFC/SFC/PSC Agenda in respective formats mentioning BOS limit.
3. Update Work records with decision of SFC/EFC/PSC with approved Value, Comments of the Committee, Concerned Unit act further, Time Limit for action, etc. and generate EFC/SFC/PSC minutes in given format.
4. Shortlist SFC/SFC/PSC approved works for release of AA and generate AA.
5. Track progress of revised TS and Tendering status.
6. Inform respective Public Representative and Recommending Authority on Work Approval Status through Email/Letter.

b. System should provide Comprehensive Dashboard that includes overall status, Issue fagging and highlighting delayed/stuck works.

c. System should provide options to search and filter records on different keywords and categories.

9.3.4 Project Formulation and Management (Specific to PIU and Deposit Works)

Being a principal contractor, every contract signed with contractor/consultant is a Project for PIU and a group of such projects ultimately delivers outcome to respective Client. Here Client is the respective Government Department or Agency which raises request for building(s) construction and PIU responds to that. The process from receiving such request to preparation for final DPR after land allotment, is being perceived here as Project Formulation. Therefore, following requirements should be fulfilled by the proposed system:

a. System should have provision for creating client accounts and formulate/create/register projects under such client accounts.
b. System should have provision to generate unique project ID and link every progress with it.
c. System should have provision to record project formulation process, communications, documents, decisions, updates, etc. as a Case Management Tool.
d. System should maintain multiple versions of DPR being updated after each meeting or consultation within PIU or with respective departments.
e. System should allow transfer of drawings, plans, files between different stakeholders and functionaries.
f. System should allow to save data, files, drawings and reports under the project id as a database management system

g. System should allow to comment on the plan/file shared between the stakeholders.
h. System should allow defining Programs which is a group of similar projects being executed for achieving same business goal.
i. System should allow to define Projects, Sub-projects, Phases, Gates, Milestones, Tasks and the dependencies between these as per Project Need.
j. Breakdown a Master Project into Sub Projects and individually Manage them with the roll up happening on the master project in real time.
k. Define Work Breakdown structure (WBS) consisting of Project activities, responsible persons, expected start and end dates.
l. Reuse Project information through project template that may consist of a work breakdown structure defined with phases, gates, milestones, and tasks with dependencies and responsible roles, folder structures for storing content, questionnaires, document templates, project budgets and resource plans.
m. System should be able to handle all deliverables/documents/automated roll ups/dynamic assignment to staff/sub-contractors
n. Minimum information on project level includes Name, Duration, Start/Finish dates, Owner, status, percentage completion, Dependencies, Constraints, plan and actual date information, related documents/deliverables
o. Auto completion of activities in the Project based on deliverable status. Roll up of percentage completion on overall schedule based on percentage completion of individual project task
p. System should be able to schedule projects taking into account multiple calendars with capability to add exceptions to accommodate unusual events.
q. System should have provision for assigning tasks by project role, expertise and availability where:
    i. The individual tasks in a Project plan are executed through an appropriate Approval Process
    ii. Project Members would be allowed to update Task Progress only for their assigned tasks

iii. Projects Members would be able to access only those Project documents for which access has been assigned to them using security defined on folder or individual documents

9.3.5 Estimate Preparation

For large projects, DPR is prepared by external agencies with detailed estimates and work plans. For small Roads and Bridges works, estimates are prepared by field engineers or design cell of MPPWD. An automated system is proposed for the preparation of detailed estimates of work along with calculation of bill of quantities and bill of material.

- System should be able to record and update all the SOR items in detail with version control system and geographical location variances.
- System should be able to handle more than one SOR to be referred/used in different use cases.
- System should facilitate to enter items not defined in SOR.
- System should provide hierarchical representation of items facilitating grouping of items aligned to functioning of each department.
- System should calculate bill of quantity as per the items mentioned in the schedule of rates (SOR).
- System should be able to generate sub-estimate for electrical and civil work etc. for different competent levels of approval.
- System should allow to enter length, width and height of the item in multiple measuring unit of the respective item.
- System should have Provision for Rate Analysis with all SORs and connected items. Rate Analysis system shall assist in obtaining optimum rate of unit quantity of an item, by capturing coefficients of resources consumptions (Material, Labour and Machinery).
- System should have Measurement Template like Steel measurement, Area template, Length etc.
- System should have facility to send sub estimate to different Departments of MPPWD.
- System should have provision for use of overheads and extra cost parameters to arrive at rate of the items.

- System should have provision for unit cost items such as labour wage rates, equipment rental and material prices. These databases can be used for any cost estimate required. If these rates change, cost estimates can be rapidly re-computed after the databases have been updated.
- System should have provision for Office Level custom Database and Library of Rate cards of resources for better estimation of work based on geographical location.
- System should provisions for manual review, over-ride and editing of any cost element resulting from the cost estimation system. System must record comment on each such over-ride and editing.
- System should support flexible reporting formats, including provisions for electronic reporting rather than simply printing cost estimates on paper
- System should have provision for managing archives of past projects to allow rapid cost-estimate updating or modification for similar designs
- System should provision for export of estimates in excel sheets for analytical purpose.
- System should allow external consultants/agencies to prepare/upload estimates in the system.

9.3.6 Technical Sanction & Administrative Approval

Application should have a workflow-based system to automate the Project / Estimation Approval process (AA/ES, Technical Sanction). The workflow process for each type of the project may be different as per competency level.

- System should have provision of a fully configurable and robust workflow based on departmental procedures.
- Should have facility to map work with Budget code.
- Should have provision for generating revised technical sanction.
- System should maintain repository of full history of all approved works.
- System should facilitate workflow process to move project plan / estimate to all competent levels for approval.
- System should display estimate to concern officer for review, comment, recommend and forward to next competent level for approval or give approval as per the financial powers.

— The system should facilitate to view and upload all relevant document necessary for AA/ES (Administrative approval/Expenditure sanction) and Technical Sanction.
— System should have facility to include internal users (Subordinates) in the approval work flow for the purpose of review and comments.
— After approval to the estimate automatically assign a unique number for documentary reference.
— System should prevent double approval of same work/project in different heads but provide features for Flexibility/Customization to add additional approvals for "Already Approved Proposals"
— System should also allow manual intervention to make changes in the quantity and rate factor
— System should provide Search and Query option to trace the historical data of any approval process on multiple parameters viz. Office, Year, Value, Type etc.

9.3.7 Design Process (Roads & Bridges)

Executive Engineer sends design requirements, financial constraint, site plan, soil investigation report to Design wing. A workflow-based system is proposed for communication with the EE and design wing. The communication between EE and Design wing should be attached with document management system to store various versions of the drawings of a single site. Further the Design Wing/ Design Consultant will also upload the necessary plans and working drawings as per requirement.

— The system should store all type of instruction/communication between the concern EE Office and Design Wing/ Design Consultant.
— The system should allow EE to send design requirements, financial constraint, site plan, soil bearing capacity report and other necessary reports/requirement to design wing.
— The system should facilitate to view and upload drawings designed in latest design software like Auto Cad, STAADPro, Civil 3D, etc.
— The system should display drawings for review and approval from competent authority.
— The system should record the comment of every stakeholder involved in the approval process.

9.3.8 Architecture Design (for Building and Bridge Works)

Respective Engineer sends design requirements, financial constraint, site plan, soil investigation report to architecture wing. A workflow-based system is proposed for communication with the concerned Engineer and architecture wing. The communication between concerned and Architecture wing should be attached with document management system to store various versions of the drawings of a single site. Further the Architecture Wing/Architect/Consultant will also upload the necessary plans and working drawings as per structure design, electrical plan, elevation plan, floor wise plan, section plan, sanitary and pipeline plan, water harvesting, drainage, electrification, parking, fire-fighting, water supply, etc.

a. The system should store all type of instruction/communication between the concern Office and Architecture Wing/Architect/Consultant.
b. The system should allow field engineers to send design requirements, financial constraint, site plan, soil bearing capacity report and other necessary reports/requirement to architecture wing.
c. The system should facilitate viewing and uploading drawings designed in latest design software like Auto Cad, Revit, STAADPro, Civil 3D, etc.
d. The system should display drawings for review and approval from competent authority.
e. The system should record the comment of every stakeholder involved in the approval process.
f. System should be able to manage Design Basis, Detailed Design, GFC and As-Built Drawings
g. System should have facility to revise and change intent on approved drawings.
h. System should have facility to add drawings to transmittal for submission
i. System should have capability to add digital signature of all approvers on GFC drawings. For digital signatures, system should have facility to integrate with 3rd Party Authentication services providing OTP (One Time Password) functionality linked with user’s Aadhaar card details
j. DRF (Document Review Forms) should be available against drawings for Reviewers and Approvers to give their comments. These should be managed as meta-data, not as a document

k. Reviewer and Approvers should have facility to add Response Documents
l. System should have in built capability to view drawings in their native format on web browser
m. System should have capability to compare drawings in their native format on web browser
n. System should have facility to create and save mark-ups for reviews and future reference
o. System should have ability to discern between regular, master and consolidated mark-up files. As designs go through multiple iterations and additional revisions are generated, mark-ups may be migrated to these new revisions as required
p. Users should be able to print documents with headers, footers and watermark information queried from specified document attributes to document proposed modifications, show differences between models or to document models and drawings with detail annotation not stored with the documents
q. System should have facility to export drawing register with details such as:
    - Date of submission to consultant
    - Date of submission to owner
    - Document No.
    - Subject/Description
    - No. of attachments
    - Recipient details
    - Details of submitting authority etc.
r. Should be able to reference other disciplines, such as piping, equipment, and electrical and perform clash detection between all disciplines and generate Clash Matrix
s. Should be capable of collaborative online engineering that includes:
    a) Interactive virtual walkthrough and Engineering review
    b) Ease of handling large complex products structure assemblies
    c) Ability to define engineering templates for assembly or parts and re-use the same
t. System should be able to generate drawings & link generated Report of Structure model to the generated Drawings
u. System should be able to generate early estimations for major items (Civil, MEP & Rebar) from BIM

v. System should provide capabilities for revision and version control of Drawings.

9.3.9 Empanelment of Architects/Consultants

MPPWD and MPRDC empanel Architects and Consultants for various services. Empaneled consultants/architects are called to submit designs, concepts, proposals, survey (Road Safety, Road Condition, Roughness, etc) and financial quotes for small works. Main purpose of such empanelment is to ensure quick availability of expert services and survey reports in different projects. Therefore, IPMS should provide following facilitation in this area:

a. System should be able to define different empanelment streams like Architects, DPR Consultants, Survey Agencies, etc.
b. System should allow registration of empaneled persons/agencies for different empanelment streams.
c. System should allow upload of documents and necessary information as part of registration process.
d. System should provide workflow-based approval of empanelment of registered agencies/persons.
e. System should provide facility to issues to notices to all/selected/eligible persons/agencies to invite proposal/concepts/design/quotes.
f. System should allow empaneled persons/agencies to submit proposal/drawings/quotes online.
g. System should facilitate comparative analysis of different proposals/concepts/designs submitted by empaneled agencies.
h. System should allow issue of work order online and facilitate preparation of agreement to be signed, if any.

9.3.10 Bid Process Management

After all the necessary approvals from Government, Executive Engineer at Division level office initiate tendering process and issue tenders. Tendering is usually undertaken by the use of Standard Bidding Documents (SBD) in which rates are quoted.

— System should have provision for NIT and Tender Document Preparation with following features:

  - Online creation of the NIT Draft through provision of online template (form) with relevant fields to facilitate easy entry of information by the creator.
  - Copying/customizing data from previously published tender notifications and from excel spreadsheet (standard format) at the time of preparation of the NIT.
  - Generation of Tender Document with BOQ built on Technical Sanctions.
  - Selection of the type of tender such as Item Rate , Percent Rate ,EPC etc. at the time of NIT creation.
  - Prepare tender schedule through the system.
  - Validate dates for various process/evaluation stages as per the standard time durations prescribed by the guidelines.
  - The competent authority must have the authority to make alterations to the defined time schedule, but not after final approval of the approving authority.
- Provision for online submission of the draft DNIT/BOQ/Tender Document to competent authority for review and approval in predefined workflow. The approver should be able to approve, attach comments, or reject the draft NIT on the system.
- Should be integrate with existing e-Tendering System of Government of Madhya Pradesh designed and developed by NIC. If such integration is not possible due to reasons beyond control of IA and MPPWD, then manual link interface should be provided where system will generate Tender Data Sheet in same format as given in e-Tendering System for Tender Upload and publication. This Tender Data Sheet will be used by concerned officer to enter required information on e-Tendering system.

9.3.11 Contract Management

After the award of the tender, contract agreement will be prepared for the selected vendor/s. The proposed system should create a draft contract/agreement that would contain standard format, clauses, terms and conditions. The proposed systems must provide the following to automate the contract management process:

- Facilitate online signing of the contract by the concerned authority using his DSC and countersigning of the same by the selected contractor/supplier using his DSC.
- System should ‘lock’ and maintain auditable record of the online contract signing for future reference.

- System should provide provision to feed standard terms and conditions for the various types of contracts.
- System should allow editing and updating of the contract content with the Change Management history and details.
- System should archive past contract documents/details to allow rapid preparation of contract document/detail.
- System should be integrated with contractor profile, so that necessary details can be fetched from there.
- In exceptional cases when it is necessary to make amendments in standard contract terms and conditions, system should have provision for making such amendments only after workflow-based approval of competent authority.
- System should have provision for creation of a project plan with milestones, schedules, resources, deliverables with timeframes.

9.3.12 Contractor Service Interface

Contractor Service Interface will allow new contractors to register themselves to bid for various works as per their category. Existing contractors will be able to use this service to access detail of their Projects, Contracts, Performance Security, Progress recorded in the system, Payment Status, Grievance Status, etc. after logging into the system.

- System should provide contractor's login service to access detail of all the Projects assigned to them.
- System should provide comprehensive view of contracts, performance security, billing status, payment status, etc. for each project in the system.
- System should allow the contractors to update work progress detail and concerned Engineer will confirm/verify the progress submitted by the contractor.
- System should allow contractor to submit request for work deviation, time deviation and quantity variation in accordance with the agreement.
- System should have effective contractor grievances resolution arrangement pertaining to entries made in MBs, work deviation, time deviation, penalties, billing and payment, scope enhancement etc.
- System should have provision for submitting request for e-Measurement.

- System should allow contractor to raise bills through online system after uploading scanned copy of relevant documents pertaining to bill.
- System should alert contractor for running behind schedule.
- System should have provision for Contractor performance rating on a scale of 1-10. The rating model shall be defined on multiple performance factors like Timely/Early completion of Project, Quality Reports, Cost Optimization, Stakeholder Feedback, etc.

9.3.13 E-Measurement Book

The Measurement book is very important document to prepare Bills and monitor progress of the work. After analyzing the work done by the contractor Sub-Engineer at ground level makes entry in the measurement book. Sub-Engineer/ground level staff should be equipped with Android Based hand device (mobile / Tablet) to record the MB details in preloaded mobile application in online as well as offline mode depending upon the availability of the connectivity. The scope of e-MB in respect to progress of work should be as under

- Native Mobile app with updated version of SOR and capability of clicking multiple geo-tagged images of the work which is being measured.
- Seamless integration with the main application for real time updation.
- Measurement taking facility should be activated only within 500 meters radius of construction location.
- App should capture/record data offline when mobile network is not available and upload data automatically when handheld device gets network coverage.
- App should capture items as mentioned in the approved work contract
- App should provide details of earlier measurements recorded for respective works.
- App should record measurements on BOQ items and measurement items other than BOQ should be added as extra work.
- App should compare BOQ with measured quantity and generate alerts on additional quantity.
- App should have provision to enforce penalty or deduction in the bill on account of low quality of work
- App should have provision for adding comments and image with each measurement, if needed.

- System should support automatic periodic generation of the proforma bill based on verified MB entries, and other contract agreement terms and conditions.
- App should support different screen sizes and resolutions of handheld device.
- App should be developed on Android Platform.
- App should provide log of previous made entries in the MB
- App should allow to move the MB to the next competent level for approval.
- System should generate auto alerts to the Junior/Sub Engineer for not taking e-Measurement and enforce to take e-Measurement in defined intervals.
- The system should support the management in monitoring of both physical and financial milestones through statistical and graphical reports
- It should be integrated with Accounts and Billing module for financial monitoring

9.3.14 Account and Billing module

- Support automatic periodic generation of the bill based on verified MB entries, and other contract agreement terms and conditions.
- System should maintain record of Performance Security deposited by the contractor in the beginning of the contract and deducted from RA/Final Bills.
- System should have provision for settlement of payments after analyzing the work done by the contractor and entries made in the verified MB
- System should have provision for deducting performance security on the percentage value agreed in the contract.
- Maintain auditable record of all requisitions, work orders, work execution status, approvals, rejections, deliveries, and cycle times for these processes.
- The bill amounts should be derived after comparing with the previous payments and comments made in the bill ledger, mandatory recoveries (TDS, Income tax etc), deductions etc.
- System should provide deduction slabs, security deposit slabs, receipt rates, recovery rates for generating bill
- System should allow to generate divisional monthly account
- System should allow verification of divisional monthly account

— System should allow to access/enter head wise opening balance (Backlog entry)
— System should allow to access/enter Scheme wise opening balance (Backlog entry)
— System should allow to transfer entry in monthly account
— System should allow the verification/approval of transfer entries
— System should allow to generate payment voucher
— System should allow to create receipt voucher
— System should allow to update receipt voucher
— System should be linked to e-Measurement module for measurement verification and Contract Management Module for financial milestones and penalty provisions.
— System should generate financial progress reports
— System should alert recoveries/penalties on account of delays or quality issues etc. according to the contract agreement.
— System should generate various reports comprising Cash and Bank Ledger or Receipts and Payments Accounts, reporting all the payments and receipts entered in each account together with running totals.

9.3.15 Works Execution

The Works Execution module will facilitate monitoring and verification of compliance with planned schedule, resources, deliverables and other details based on project type. Project Execution should offer following functionalities

— System should fetch Progress Milestones and Timelines from Contract Management Module.
— System should be linked with the online MB for the monitoring of progress.
— System should have provision for manual Entry of project status as and when required.
— System should generate milestone based on reports, and SMS/Email based alerts for any slippages
— Flexibility to revise milestones based on available data and subsequent real time revisions in the project plan the feature should be integrated in the workflow.
— System should provide an approval mechanism for approving scope enhancements and taking decision on action against scope deviations.

- System should alert recoveries/penalties on account of delays or quality issues etc. according to the contract agreement.
- System should support the management in monitoring of both physical and financial milestones through statistical and graphical reports.
- System should provide real time update on billing and payment to assess progress against financial milestones.
- System should have provision for generating alerts for Performance Security return after completion of the term as defined in the respective contract and provide workflow based system for obtaining approval for return of Performance Security.
- System should have facility to integrate with Android based mobile application (described later in this section) which allow to capture the geo tagged photographs against a project/scheme and will be updated to application to identify the physical progress.
- Should have ability to have integration with Any PM tool Like Primavera or MS project etc.

9.3.16 Quality Control

At any point of time the Competent Authority at MPPWD may disagree with the material used by the contractor in the construction work. Proposed System should have Quality Control module with the following functionalities: -

- System should have provision to define category, name and frequency of tests at different stages of different types of work.
- System should have provision to define quality inspections at different stages of different types of work.
- System should provide alerts for conducting Tests and Inspections at different stages of different types of work.
- System should have provision for registration of departmental and external quality test labs for maintaining record of samples received, tested and disposed as well as online uploading of test results.
- System should auto generate list of the works to be inspected
- System should store prescribed Quality parameters for the testing of the material
- System should generate list of the works pending for the quality test as per Quality and Control policy

- System should have provision for review and revise specifications, standards, rules to maintain the quality of the material to be used for the construction work
- System should have provision for generating Random Chainages for any road to collect samples.
- System should have provision for generating unique confidential code for each Random Chainage/Location for sample collection to mask identity of sample/location and maintain anonymity while transportation and testing of samples.
- System should have provision for online uploading of Test Reports with Confidential Codes where system will decode the identity of sample and publish Test Report/Result.
- System should capture test results and generate test reports based on the pre-defined quality rules
- System should generate work code wise test reports during the execution of the work
- System should maintain history of work code wise test performed
- In case of adverse test results, the report should be made available to the all concerned immediately.
- This module should be interlinked with the Billing and Payment module in order to impose penalties/ stop payment to contractor in case of non-adherence to prescribed quality parameters.
- Periodic reviews based on milestones in the project life cycle

9.3.17 MIS Dashboards

MIS Dashboards shall integrate all the modules of IPMS. User shall require a web browser with internet connectivity to interact with the online web-based system. Following points outline key requirements of the MIS Dashboards:

- Should be integrated with existing MPPWD website all users and separate Intranet Portal for each MPPWD application access.
- Shall have security and identity management features like User authentication, authorization, role based access etc.
- Shall have provision for adding and publishing Information about MPPWDs Services, Processes & Procedures, related application forms, Announcements, Circulars &

Notifications, Press releases, Acts/Bills, FAQs, Policy Information (Privacy, Security), Feedback, Contact, Sitemap and such other information that is useful for external users.

- Should have instruction kits and online help detailing step by step instructions for using the MIS Dashboard.
- Shall provide powerful search features through the automatic categorization and indexing functionality as provided by various datasets.
- Dashboards shall provide consistent look & feel to the users and the standards shall be defined for content, structure and presentation which should be applied and followed throughout the MIS Dashboards.
- Should provide data caching at multiple levels including page/sections in the page, which improves the performance, in terms of the speed at which content is delivered to users, by caching frequently accessed information.
- Should provide activity reporting facility for logging the user behavior and profile information and also provide canned and ad-hoc reporting capabilities of the raw data. User demographics and content navigation patterns are common reports that shall be provided based on activity reporting function.
- Should provide a tool for content management and the tool should allow automatic indexing and searching.
- Shall provide dedicated interface for external registered users (stakeholders) :
- Ability to support XML, WML, SOAP by the solution to integrate with other systems
- Should comply with W3C Accessibility Guidelines and GIGW published by Govt. of India.
- All the accounting formats should be as per the Central Public Works Account Code
- Should provide mandatory reports, mentioned in Appendix IV.

9.3.18 Task Management

The application should provide complete facility to add/ edit/ review/block activity, sub activities and other task related to Activities. It will provide a workflow for the approval of activities wherever required. The user may specify the task and stage related to activity. e.g for approval of DPR, system will comprise sub activities like finalization of land, location of land, clearance from revenue department, rough estimation, bill of quantities, clearance from internal accounts branch etc. It will provide facility to define start date, target date, priority, ownership, weightage etc.

9.3.19 Document Management System

Document Management System (DMS) will support the IPMS Application as backend for storage, management, archival, retrieval, search, access control, view and share document. DMS will store and management all the documents created at various stages of project execution. Following are key requirement of DMS:

- Document should be stored/archived in a single centralized vault for easy retrieval, storage, and sharing for future use.
- Special provision for storage of maps, drawings, layouts, etc. in structured manner with version control and configurable metadata repository.
- Robust security and access control system to avoid unauthorized access and provision for defining and implementing role-based permissions for storage, management, archival, retrieval, search, view and share documents.
- Version control system to maintain document's versions without having to maintain multiple copies of a single document.
- Should have facility to link all business processes for both sending and receiving of files, with maintained relationships to all business process records.
- Indexing and classification of documents for a quick, easy retrieval.
- Provision for Bulk upload
- Document viewer to view files of different formats in web browser.
- Audit trail maintenance to track document's path in its lifecycle.

9.3.20 Finance and Accounts Management

9.3.20.1 Online Voucher

The system shall facilitate online preparation of various types of vouchers so as to ensure that expenditure is done only for sanctioned works, under approved accounting head & under the approved budget limits. The user can use any system from any location to log onto the server using internet connectivity and then perform following actions:

- Select the type of voucher from the following –

- — (a) Road works
- — (b) Bridge works
- — (c) Repair and maintenance works
- — (d) Electrical and Mechanical works
- — (e) Treasury Vouchers
- — (f)Miscellaneous Vouchers

— Enter the required details on in the voucher form and related link form

— The system validates the voucher.

— Correct the voucher.

— Generate the voucher form and print it.

— Send the voucher along with the supporting documents to competent authority for pre-passing as per the existing practice.

— Complete the online-voucher after making the payment to the concerned by entering the required fields. The user is not allowed to edit/modify the voucher once it has been finalized.

— The cash copy and other documents/records etc. is updated only after the user completes the voucher on the online system and freeze it.

— The voucher transaction shall also automatically update various registers being maintained for the record keeping i.e. bridge register, road register, building register, repair & maintenance register and posting in online cashbooks

9.3.20.2 Online Cashbook

Online Cashbook shall maintain record of all the financial transactions, vouchers and challans as per rules defined by Govt. of MP. Following are the key requirements:

— The accounts should be classified under the head of receipts

— The accounts are generated automatically from the online voucher.

— The voucher should contain the respective Accounting head

— Under Receipts and Payments columns, there should be particulars containing pay, allowances, advance payment, miscellaneous, total and classification

9.3.20.3 Audit Para Tracking

The system shall have provision of recording Audit Para/Observations submitted by AG Office as part of Audit Report. These Audit Paras needs to be resolved in timely manner. In order to track resolution or compliance against Audit Observation, the system shall record all the Audit Para/Observations where action is required at level of concerned offices. Therefore, following requirements shall be addressed under this sub-module:

- The system shall record each Audit Report with necessary meta data.
- For each Audit Report entry, the system shall also record Audit Observations/Paras as separate actionable task along with required action, responsible office, timeline, etc.
- Concerned Office shall take necessary action to resolve Audit Para and submit detail of same to mark the Para as closed.
- State level authority from finance domain, shall have necessary rights to close the Para after recording his/her satisfaction on actions taken by concerned offices.
- Real time status of Open and Closed Audit Paras with timelines shall also be added as Dashboard item for monitoring by the authorities.

9.3.20.4 Online Payment Certificate and Work Completion Certificate

Online Payment Certificate: The payment to the contractor for construction work shall be as follows:

- The contractor shall submit to the engineer monthly statement of to-date value of the work executed less the cumulative amount certified previously, supported with detailed measurement of each item of work executed.
- The Engineer shall check the contractor’s monthly statement with e-MB entries and certify the amount to be paid to the contractor.
- The value of work executed shall determine, on the basis of measurements approved by the Engineer/ Engineer-in-Charge
- The value of executed work shall comprise the value of the quantities of various items of work in the bill of Quantities
- The value of executed work shall also include the valuation of Variations and Compensation Events
- Deduction for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law shall be adjusted from all payments

- The Engineer may exclude any item of work previously certified in any certificate
- Intermediate Payment Certificate (IPC) shall be regarded as payments for work actually done
- The Payment of final bill shall be governed by the provisions of clause 36 of GCC

Online Completion Certificate:

- After Physical completion of the work, completion certificate shall be issued by the E-in-C in online format.
- The system should generate Physical Completion certificate which shall include Name of work, Agreement Number, Date, Amount of Contract , Name of the Contractor, Measurement Book Number used, last measurement recorded
- The physical completion certificate should also include declaration, date of issue of certificate and digital signature of Executive Engineer
- After final payment to the contractor final completion certificate shall be issued by the E-in-C in online format.
- The system should generate Final Completion Certificate which shall include Name of work, Agreement Number, Date, Amount of Contract, Name of the Contractor, Measurement Book Number used, last measurement recorded
- The Final Completion Certificate should also include declaration with date of physical completion and taken over on, amount of Contract and amount actually paid to Contractor, date of issue of certificate and digital signature of Executive Engineer

9.3.21 Mobile App

Mobile Application shall mainly provide access to works performance dashboards. The app will also display minor detail of the projects that mapped with respective user IDs. Same User ID and Password with mobile number OTP shall be used for app login. The app will also provide various alerts to respective users to ensure timely response. Following are requirements for Mobile App:

- Single Sign-on as desktop application with mobile number OTP.
- Provide access to various performance dashboards.
- Alerts and notifications on various developments and issues.

— Ability to click Geo-tagged photographs and upload as part of project status reporting.

9.3.22 User Management

The functional specifications of the user Management are provided below:

— Should allow only authorized system administrators to access this function

— Shall facilitate the system administrator to Add, Delete, Modify, Password reset, Restrict etc. For the user profiles

— Ability to support role based access control

— Ability to provide multiple roles for one user

— Ability to configure the number of permissible log-in attempts

— Ability to restrict data updation/deletion/creation only through application layer

— Solution should comply with the Indian Information Technology Act

— Ability to provide access level security for Entry forms at Field level - allow, Read only, Hide

— Ability to provide access level security for Entry forms at Transaction level - allow/deny

— Ability to provide access level security for reports at Transaction level - allow/ deny

— Ability to provide authorization by transaction type

— Ability to provide authorization by user name

— Ability to provide automatic time out for entry transaction

— Ability to provide time restriction on transactions

— Ability to provide user login with time restriction

— Ability to provide automatic time out (log out) for user

— Should allow the administrator to define access groups/create access policies

— Should support defining of time or location based policies

— Should support defining of fine-grained access control to service, functionality, file, page, or objects

— Should allow only authorized administrators to access this function

— Should allow creation of new user accounts and should seek the general user inputs (as required by application solution) for the same.

— Should validate the inputs provided by the user and display an appropriate error message if any of the inputs is not valid.

- Should check if new user id to be created is already in use. If so, an appropriate error message should be displayed
- Should create a new user if the inputs provided are valid. The new user created must be granted access to all the requested services. System should automatically generate a password for the new user and email the login details to the email id provided or support passwords based on password policies
- Should allow deactivation of user accounts. The account entries should only be passivated and should not be removed from the database on deactivation
- Should allow updating of user accounts. The following should be possible:
  - Updating of user details
  - Resetting of password
  - Updating of the services to which the user has access
  - Should log user actions
- Should have a self-service module in which the user can modify his/her personal/professional details.
- The solution should have facilities for enforced-change of password after first-time login including after password reset, automatic password outage after a fixed period of time, maintenance of unique passwords that neither resemble login ID nor any of the previously used passwords (last n passwords), a combination of upper & lower cases, numbers and special characters, be of sufficient strength and not less than 6 characters in length, etc.
- The solution should auto-logout the user after a defined period (pre-configurable) of non-interaction by the user with the system. All such logouts will cause the system to save the data as a “dirty-form” for further work after a fresh login by the same user
- Should provide access to the self-service module post user-login
- Should log user actions
- The solution should provide Challenge-Response system to authenticate a user with a forgotten password by using shared secrets.

9.3.23 Workflow Management

- The workflow management system should support definition of business performance measurements.
- The system should allow configuration of various processes and management of multi stage process workflow
- The system should support BPEL (Business Process Execution Language) export of the business process
- The system should provide graphical modeling environment for process flow, resources, organization, cost, time, data and performance measurement
- The system should support export of the analysis results as excel sheets, PDF, Word format
- The system should support generation of multiple types of reports and their formats – Summary, Comparison etc.
- The system should provide multiple in-built performance indicators for the process
- The system should provide a common Web-based UI for System Administration
- The system should support Business rules and templates.

9.3.24 Projects on EPC

Projects under EPC mode are executed differently where unlike Item Rate or Percentage Rate contract, includes all the steps necessary to design, build, and maintain a project. All the responsibility of designing, development, material, labour, etc. is held by contractor at a fixed price. Key purpose of EPC contracts is to ensure project is completed on time and within budget. It involves allocating resources wisely, coordinating efforts between different parts of the construction team, and maintaining communication between all stakeholders. EPC method improves the quality of a project as well as reduce costs. The key difference between a civil works EPC contract and other contracts is that the contractor takes on more risk under an EPC contract. This means that the contractor is responsible for any cost overruns or schedule delays that occur during the project.

IPMS should have all necessary provisions for executing projects where all the contractual compliances shall be defined on the system with due date and deliverables. System will process for payment as per milestones defined in the contract and set in the system, after ensuring receipt and approval of deliverables by concerned authorities.

9.3.25 Projects on BOT/Annuity/OMT

9.4 SYSTEM STUDY BY IA

All the above requirements are based on our internal study conducted without keeping any application platform or ready to deploy product in the mind. These requirements will be refined further during requirement gathering and system. Sole purpose of defining functional and application level requirements here is to provide a fair idea on project complexities and resource/solution requirements so that the prospective bidders can effectively plan their solutions and present same in their respective technical proposals.

9.5 FUNCTIONAL PERFORMANCE REQUIREMENTS

The expected load on the system is as follows:

1. Numbers of internal users are estimated to be around 3,000 that include all the offices of MPPWD (Road & Bridge), MPPWD-PIU and MPRDC. System should have provisions to add new internal users as and when required. Number of such additional users will not be more than 30% in next 3 years after go live.
2. Expected numbers of external users (primarily Works Contractors and Consultants) are 5,000 and this volume is expected to grow @20% per annum for next 3 years.
3. Expected numbers of External Concurrent Users will be around 500 and Internal Concurrent Users will be 2000.
4. Mobile application will have 20000 users, which may be increase upto 50000 in coming years.
5. Apart from users, around 10000 page views are expected each day on the Public Portal.
6. The application software should be designed to cater to this load without any degradation of performance as explained above.
7. The system should utilize a database schema and design that is capable of handling current and future loads as indicated above (should be scalable).
8. System should be upwardly scalable in the event of increased usage of the system or new business requirements.

9.6 TECHNICAL REQUIREMENTS

9.6.1 Solution Framework

Indicative solution architecture of IPMS Application system is shown in the figure below. The schematic diagram represents the overall solution architecture of the Project. The IA shall propose a relevant solution in his proposal that best suits the required functionality.

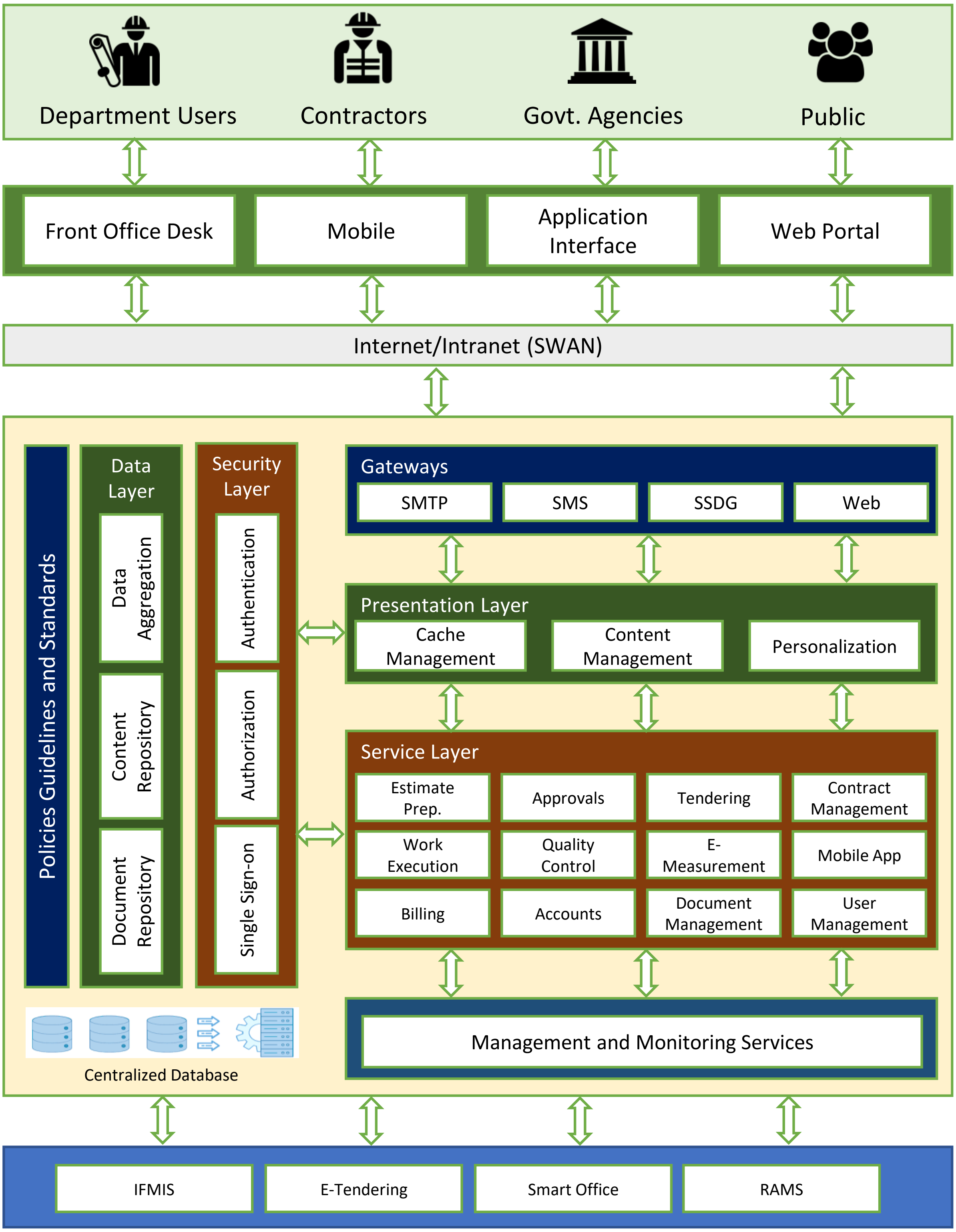


FIGURE 4: COMPREHENSIVE VIEW OF APPLICATION FRAMEWORK

Above Figure depicts a conceptual architecture of the system. Please note that the architecture depicted above is holistic representation of the implementation of all components of Application Framework, and not just of a few components. Implementing

Agency will have the opportunity to modify this framework in consultation with MPRDC Technical Team for better fitment with the proposed solution.

9.6.2 Users

Following user groups shall perform different operations on the application system.

Group	Users	Purpose
Internal Users	State Headquarter Users (Secretaries, PD, APDs, JPD and others.)	Project Monitoring, Performance Tracking, Budgetary Approvals, etc.
	Budget & Finance	Adding new works as per budgetary approvals
	APD, DPE	Works cost estimation, Tendering, Contract Management, Payments.
	Accounts	Accounting, Billing and Payment.
	ADPE and Sub Engineers	e-Measurement, Bill Verifications, Quality Assurance, Demand Assessment, Inspections and Supervision.
	Quality Testing Labs	Quality Reporting
External Users	Owner Departments	Progress Monitoring and Issue tracking.
	Contractors	Performance Reporting, Bill Submission, Payment Status Tracking, Accessing Project Related Documents.
	SQC Consultant	Performance Reporting, Measurement Submission, Quality reporting, etc.
	Architects/Consultants	Deliverable Submission, Performance Reporting, Accessing Project Related Documents.
More users may be added by IA as per requirement of the solution proposed and as per need generated during system study.		

9.6.3 Access Channels

Application services shall be accessed through various channels. Intranet based Application interface would be the main access channel for most of the services. For external users, the access channel would be MPPWD and MPRDC web portals. All status updates and alerts on cases shall be provided through SMSes and emails. The internal users are expected to use the back-office portal for various services.

9.6.4 Gateways

The various gateways act as interfaces to the users and service layer. The gateways include web gateway, SSDG (State Service Delivery gateway), SMS gateway and SMTP gateway. These gateways essentially enable the access to the services through access channels.

9.6.5 Presentation Layer

The communication with the Application will be performed via Web Services. The presentation layer components extract the data from the services and presents to the user in a personalized format. When a user places any service request, these service interfaces invoke the respective applications and data returned by the application and presented to the user in a readable format.

9.6.6 Services Layer

Service layer consists of business logic through different modules. Conceptually, the system can be conceived as a synthesis of inter-linked information systems for the IPMS business areas. In other words, each information system pertaining to a business area would together make the system.

9.6.7 Security Layer

Security is the critical component of the solution architecture. Single Sign-On (SSO) and Role based access are achieved through the identity assertion, credential management and directory services components. Security layer components should adhere to the standards for the security management as prescribed in this RFP.

9.6.8 Data layer

Data layer contains the data access logic agents and service agents through Data aggregation component. This layer shall be accessed by services layer to perform various functions and tasks.

9.6.9 Policies, Guidelines and Standards

Policy and guidelines are the guiding principles for the overall Application architecture. All the business logics, functions, access channels, services, etc. should strictly adhere to the policies and guidelines laid out. The solution shall follow open standards and other technology standards

9.6.10 External Interfaces

The application should easily interface with the external systems. External systems include Integrated Financial Management Information System (IFMIS), MP Govt. E-Tendering Portal (www.mptenders.gov.in), Road Asset Management System, CM Dashboard, PM Gatishakti Protal, etc. Application should be able to interact with these external systems through application level integration. System should also comply with open standards. MPRDC will provide necessary facilitation during integration process.

9.6.11 Cloud Hosting

1. IPMS shall work on centralized architecture, in which application and database, both shall be hosted on Cloud. All the MPRDC and MPPWD offices will access the application on Internet using VPN or Whitelisted IPs registered on the application. The application shall be accessed through the back-office portal via a secure communication. Expected data size is approximately 5 TB. Data is expected to grow at the rate of 20% per year. Solution will be scalable enough to accommodate minimum 10 years of data.
2. Service of Cloud Service Provider (CSP) shall be provided by MP State Electronic Development Corporation (MPSEDC) to IA as per application requirements and compatibility. IA shall prepare and provide cloud service requirements in prescribed format as required by MPSEDC. All such requirements including virtual server specifications, Storage, Backup, Service OS, Database system, Disaster Recovery system, etc. shall be submitted in detail in technical proposal.
3. For application customization, testing and development, IA shall provide cloud services at its own cost. MPRDC, through MPSEDC, will provide Cloud services only after User Acceptance Testing of Phase 1. Before UAT of phase 1, it will be IA's responsibility to host IPMS application with optimum cloud setup to configure and test the IPMS Application with all allied components including Server OS, backup, antivirus, database, etc.

9.7 APPLICATION SECURITY

The security solution should support application layer security and user control platform which should be able to identify and prevent known/unknown threats. The proposed solution should therefore integrate the user's identity repository (across all entities) to enforce authorized access to the related in-scope applications. The security provisions should be capable of providing firewall, application control, Antivirus, Anti-malware, content filtering and Anti-bot, URL filtering, DoS prevention functionality to achieve the complete security. Security solution should:

a. Prevent SQL Injection Vulnerabilities for attack on database

b. Prevent XSS Vulnerabilities to extract user name password (Escape All Untrusted Data in HTML Contexts and Use Positive Input Validation)
c. Secure Authentication and Session Management control functionality shall be provided through a Centralize Authentication and Session Management Controls and Protect Session IDs from XSS
d. Prevent Failure to Restrict URL Access Vulnerabilities by providing authentication and authorization for each sensitive page, use role-based authentication and authorization and make authentication and authorization policies configurable
e. Prevent Insufficient Transport Layer Protection Vulnerabilities. SSL for all sensitive pages, set the secure flag on all sensitive cookies and secure backend connections
f. Prevent Id Redirects and Forwards Vulnerabilities
g. For effective prevention of SQL injection vulnerabilities, IA should have monitoring feature of database activity on the network and should have reporting mechanism to restrict or allow the traffic based on defined policies.

9.8 COMPLIANCE WITH E-GOV STANDARDS

9.8.1 Single-Sign On

The application should enable single-sign-on so that any user once authenticated and authorized by system is not required to be re-authorized for completing any of the services in the same session. For employees of MPRDC and MPPWD, the browser based application accessed on the intranet/internet, through single-sign-on mechanism, will provide access to all the services based on their roles and responsibilities, help module, basic and advanced reporting etc. Similarly, for external users (citizens, etc), based on their profile and registration, the system shall enable single sign on facility to apply for various services, make payments, submit queries /complaints and check status of their applications.

9.8.2 Support for PKI based Authentication and Authorization:

The solution shall support PKI based Authentication and Authorization, in accordance with IT Act 2000, using the Digital Certificates issued by the Certifying Authorities (CA). In particular, 3 factor authentications (login id & password, biometric and digital signature) shall be implemented by the SA for officials/employees involved in processing citizen services as per the Functional requirements and specifications.

9.8.3 Interoperability Standards

Keeping in view the evolving needs of interoperability, especially the possibility that the solution shall become the focal point of delivery of services, and may also involve cross functionality with the e- Government projects of other departments / businesses in future, the solution should be built on Open Standards. Some of the states already have other applications deployed and running for delivering services to citizens. The SA shall ensure that the application developed is easily integrated with the existing applications. Every care shall be taken to ensure that the code does not build a dependency on any proprietary software, particularly, through the use of proprietary 'stored procedures' belonging to a specific database product.

9.8.4 Scalability

One of the fundamental requirements of the proposed application is its scalability. The architecture should be proven to be scalable (cater to increasing load of internal and external users and their transactions) and capable of delivering high performance for at least five years from the date of go-live. In this context, it is required that the application and deployment architecture should provide for Scale- Up and Scale out on the Application and Web Servers, Database Servers and all other solution components. For pilot states, the scalability is very important and this aspect should be thoroughly tested before state wide roll out.

9.8.5 Security

1. The IPMS should be highly secure, considering that it is intended to handle sensitive data relating to MPRDC and MPPWD. The security services used to protect the solution shall include: Identification, Authentication, Access Control, Administration and Audit and support for industry standard protocols. The overarching security considerations are described below:
    a. The solution shall support advanced user authentication.
    b. Security design should provide for a well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.
    c. The solution should provide for maintaining an audit trail of all the transactions and should also ensure the non-repudiation of audit trail without impacting the overall performance of the system.

d. The overarching requirement is the need to comply with ISO 27001 standards of security.

e. The application design and development should comply with Open Web Application Security Project [OWASP] top 10 principles.

2. A sample list of information security requirements is specified below. (Needs to be customized as per project requirements)

Sr.	Security Areas	Specifications
1.	**Physical Security**	• Project equipments, should be physically secured by the IA.
2.	**Network Security**	• Appropriate firewalls, IPS, SSL devices etc. should be used to ensure Network security. • The solution should support SSL encryption mechanism for transferring data across • network and between client and server
3.	**System Security**	• Adequate access control procedures should be defined to secure the entire IT system, physically and logically. • The access controls procedures should cover all stages in the life-cycle of user access, from the initial registration of new users to the final de- registration of users who no longer require access to information systems and services. • The system should have 2 factor authentication mechanism either through One Time Password (OTP) or soft tokens based technologies for access control and user authentication.
4.	**Application Security**	• The solution should have appropriate authentication mechanisms • Application user authentication & authorization related transactions should be encrypted.

Sr.	Security Areas	Specifications
		• Operating system should be hardened on which the application is installed. • A web application firewall shall be deployed to secure the web-layer. • The web applications should be free from OWASP / SANS and CERT-IN web application • vulnerabilities as released from time to time.
5.	**Audit Trails & Logs**	• Event logging should create an accurate record of user activity such as which users accessed which system, and for how long. • The solution should log all types of events especially those related to security
6.	**Data Protection**	• The solution should support SSL encryption mechanism for transferring data across network. Provision should be made to ensure that data in any form should not be copied on to any external media without authorization. • The data transferred across network should be encrypted using Public Key Infrastructure (PKI). • Complete end point data protection should be provided at client site such that any type of data pilferage using unauthorized copying, storing and emailing could be prohibited. • Access to all system resources including data files, devices, processes and audit files should be provided to the intended users only. • All mobile applications should be designed and developed in a way that it ensures security of the application and data on the device.